

Product datasheet for **RG210319**

PHD3 (EGLN3) (NM_022073) Human Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	PHD3 (EGLN3) (NM_022073) Human Tagged ORF Clone
Tag:	TurboGFP
Symbol:	PHD3
Synonyms:	HIFP4H3; HIFPH3; PHD3
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)
ORF Nucleotide Sequence:	>RG210319 representing NM_022073 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
GCC**CGATCGCC**

ATGCCCTGGGACACATCATGAGGCTGGACCTGGAGAAAATTGCCCTGGAGTACATCGTGCCCTGTCTGC
ACGAGGTGGGCTTCTGCTACCTGGACAACCTTCTGGGCGAGGTGGTGGGCGACTGCGTCCTGGAGCGCGT
CAAGCAGCTGCACTGCACCGGGCCCTGCGGGACGGCCAGCTGGCGGGCCGCGCCGGCGTCTCCAAG
CGACACCTGCGGGGCGACCAGATCACGTGGATCGGGGCAACGAGGAGGGCTGCGAGGCCATCAGCTTCC
TCCTGTCCCTCATCGACAGGCTGGTCTCTACTGCGGGAGCCGGCTGGGCAAATACTACGTCAAGGAGAG
GTCTAAGGCAATGGTGGCTTGTATCCGGGAAATGGAACAGGTTATGTTGCCACGTGGACAACCCCAAC
GGTGATGGTCGCTGCATCACCTGCATCTACTATCTGAACAAGAATTGGGATGCCAAGCTACATGGTGGGA
TCCTGCGGATATTTCCAGAGGGGAAATCATTATAGCAGATGTGGAGCCATTTTTGACAGACTCCTGTT
CTTCTGGTCAGATCGTAGGAACCCACACGAAGTGCAGCCCTTTACGCAACCAGATATGCTATGACTGTC
TGGTACTTTGATGCTGAAGAAAGGGCAGAAGCCAAAAAGAAATTCAGGAATTTAACTAGGAAAATGAAT
CTGCCCTCACTGAAGAC

ACGCGTACGCGGCCGCTCGAG - GFP Tag - GTTTAA



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Protein Sequence: >RG210319 representing NM_022073
 Red=Cloning site Green=Tags(s)

MPLGHIMRLDLEKIALEYIVPCLHEVGFICYLDNFLGEVVGDCVLERVKQLHCTGALRDGQLAGPRAGVSK
 RHLRGDQITWIGGNEEGCEAISFLLSLIDRLVLYCGSRLGKYYVKERSKAMVACYPGNGTYVVRHVDNPN
 GDGRCITCIYYLNKNWDAKLHGILRIFPEGKSFADVEPIFDRLFFWSDRRNPHEVQPSYATRYAMTV
 WYFDAEERAEAKKKFRNLTRKTESALTED

TRTRPLE - GFP Tag - V

Restriction Sites: SgfI-MluI

Cloning Scheme:



ACCN: NM_022073

ORF Size: 717 bp

OTI Disclaimer: The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. [More info](#)

OTI Annotation: This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.

Components: The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).

Reconstitution Method:

1. Centrifuge at 5,000xg for 5min.
2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.
3. Close the tube and incubate for 10 minutes at room temperature.
4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.
5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.

RefSeq: [NM_022073.4](#)

RefSeq Size: 2722 bp

RefSeq ORF: 720 bp

Locus ID: 112399

UniProt ID: [Q9H6Z9](#)

Cytogenetics: 14q13.1

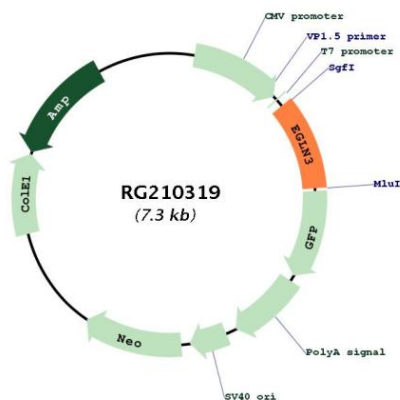
Domains: 2OG-Fell_Oxy, P4Hc

Protein Families: Druggable Genome

Protein Pathways: Pathways in cancer, Renal cell carcinoma

Gene Summary: Cellular oxygen sensor that catalyzes, under normoxic conditions, the post-translational formation of 4-hydroxyproline in hypoxia-inducible factor (HIF) alpha proteins. Hydroxylates a specific proline found in each of the oxygen-dependent degradation (ODD) domains (N-terminal, NODD, and C-terminal, CODD) of HIF1A. Also hydroxylates HIF2A. Has a preference for the CODD site for both HIF1A and HIF2A. Hydroxylation on the NODD site by EGLN3 appears to require prior hydroxylation on the CODD site. Hydroxylated HIFs are then targeted for proteasomal degradation via the von Hippel-Lindau ubiquitination complex. 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 hypoxia-inducible genes. EGLN3 is the most important isozyme in limiting physiological activation of HIFs (particularly HIF2A) in hypoxia. Also hydroxylates PKM in hypoxia, limiting glycolysis. Under normoxia, hydroxylates and regulates the stability of ADRB2. Regulator of cardiomyocyte and neuronal apoptosis. In cardiomyocytes, inhibits the anti-apoptotic effect of BCL2 by disrupting the BAX-BCL2 complex. In neurons, has a NGF-induced proapoptotic effect, probably through regulating CASP3 activity. Also essential for hypoxic regulation of neutrophilic inflammation. 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. Target proteins are preferentially recognized via a LXXLAP motif.[UniProtKB/Swiss-Prot Function]

Product images:



Circular map for RG210319