abcam

ab103432

Anti-PHD2 / prolyl hydroxylase antibody [366G/76/3]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.02% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	366G/76/3
Purification technique	Affinity purification Protein A/G
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	0.1 µg for 10^6 Cells
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Target data

See full target information EGLN1

Function	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 HIF1B. 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 hypoxy-inducible genes. EGLN1 is the most important isozyme under normoxia and, through regulating the stability of HIF1, involved in various hypoxia-influenced processes such as angiogenesis in retinal and cardiac functionality. Target proteins are preferentially recognized via a LXXLAP motif.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	The protein PHD2 also known as prolyl hydroxylase 3 EGLN1 or 366G is a member of the prolyl hydroxylase family with a molecular mass of approximately 46 kDa. PHD2 is expressed in a variety of tissues particularly those in the human body's oxygen-sensing cellular machinery. This protein functions mechanically by adding hydroxyl groups to proline residues on its target proteins an enzymatic activity essential for its role in cellular oxygen sensing.
Biological function summary	This hydroxylation process influences the stability of hypoxia-inducible factor (HIF) by marking it for degradation under normal oxygen levels. PHD2 is a monomeric enzyme but its hydroxylase activity does not require association with other proteins to function. By regulating HIF PHD2 plays a critical role in cellular responses to oxygen availability controlling genes involved in processes such as angiogenesis metabolism and cell survival.

Pathways	PHD2 participates in the HIF signaling pathway and oxygen homeostasis pathways. The regulation of HIF by PHD2 occurs alongside PHD1 and PHD3 which have similar hydroxylase activities. Importantly PHD2 protects cells from hypoxia-related stress by ensuring the degradation of HIF-α subunits under normoxic conditions thereby maintaining cellular homeostasis and proper metabolic function.
Associated diseases and disorders	PHD2 has connections with conditions such as cancer and chronic kidney disease. Its role in cancer is linked to its regulation of HIF where dysregulation can lead to abnormal cell growth and angiogenesis. In chronic kidney disease the insights into PHD2's function offer potential therapeutic targets particularly since HIF stabilization can ameliorate anemia frequently associated with this condition. Interactions between PHD2 and other proteins in these disease pathways make it a significant focal point for research aimed at developing new treatments.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

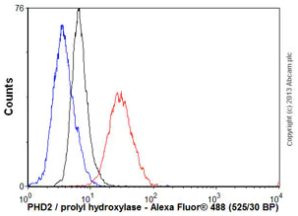
We do not recommend this combination. It is not covered by our product promise.

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1 product image



Flow Cytometry - Anti-PHD2 / prolyl hydroxylase antibody [366G/76/3] (ab103432)

PHD2 / prolyl hydroxylase Flow Cytometry staining using mouse Anti-PHD2 / prolyl hydroxylase antibody

Overlay histogram showing SHSY-5Y cells stained with ab103432 (red line). The cells were fixed with 4% paraformaldehyde (10 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab103432, 0.1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-mouse IgG (H&L) (ab150113) at 1/2000 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 1µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line) was also used as a control. Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter. This antibody gave a positive signal in SHSY-5Y cells fixed with 80% methanol (5 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.

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