SANTA CRUZ BIOTECHNOLOGY, INC.

HIF PHD2 (S-15): sc-34923

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The Power to Question

BACKGROUND

Prolyl hydroxylase domain proteins PHD1, PHD2 and PHD3 (also designated EGLN2, EGLN1 and EGLN3, respectively) can hydroxylate HIF-α subunits. Hypoxia-inducible factor (HIF) is a transcriptional regulator important in several aspects of oxygen homeostasis. The prolyl hydroxylases catalyze the post-translational formation of 4-hydroxyproline in HIF-α proteins. PHD1, which is widely expressed, with highest levels of expression in testis, functions as a cellular oxygen sensor and is important in cell growth regulation. PHD1 can localize to the nucleus or the cytoplasm and is also detected in hormone responsive tissues, such as normal and cancerous mammary, ovarian and prostate epithelium. PHD1 is encoded by EGLN2, which maps to chromosome 19q13.3. PHD2 is regarded as the main cellular oxygen sensor, as RNA interference against PHD2, but not PHD1 or PHD3, is enough to stabilize HIF-1α in normoxia. PHD2, a direct HIF target gene, is expressed mainly in skeletal muscle, heart, kidney and brain. PHD3 may play a role in the regulation of cell growth in muscle cells and in apoptosis in neuronal tissue. PHD3 is widely expressed, although the highest levels can be detected in placenta and heart.

REFERENCES

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2. Aprelikova, O., Chandramouli, G.V., Wood, M., Vasselli, J.R., Riss, J., Maranchie, J.K., Linehan, W.M. and Barrett, J.C. 2004. Regulation of HIF prolyl hydroxylases by hypoxia-inducible factors. J. Cell Biochem. 92: 491-501.
3. Marxsen, J.H., Stengel, P., Doege, K., Heikkinen, P., Jokilehto, T., Wagner, T., Jelkmann, W., Jaakkola, P. and Metzen, E. 2004. Hypoxia-inducible factor-1 (HIF-1) promotes its degradation by induction of HIF-α-prolyl-4-hydroxylases. Biochem. J. 381: 761-767.
4. Metzen, E., Stiehl, D.P., Doege, K., Marxsen, J.H., Hellwig-Burgel, T. and Jelkmann, W. 2005. Regulation of the prolyl hydroxylase domain protein 2 (PHD2/EGLN-1) gene: identification of a functional hypoxia-responsive element. Biochem. J. 387: 711-717.
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CHROMOSOMAL LOCATION

Genetic locus: EGLN1 (human) mapping to 1q42.2.

SOURCE

HIF PHD2 (S-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of HIF PHD2 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-34923 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

HIF PHD2 (S-15) is recommended for detection of HIF PHD2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for HIF PHD2 siRNA (h): sc-45537, HIF PHD2 shRNA Plasmid (h): sc-45537-SH and HIF PHD2 shRNA (h) Lentiviral Particles: sc-45537-V.

Molecular Weight of HIF PHD2: 46 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.