Revision 4

Store at -20C

#13428

PHGDH Antibody

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	Endogenous	57	Rabbit	#O43175	26227

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

PHGDH Antibody recognizes endogenous levels of total PHGDH protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Gln29 of human PHGDH protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Mammalian cells synthesize serine *de novo* by diverting a portion of the glycolytic intermediate 3-phosphoglycerate into the phosphorylated pathway of serine synthesis. This shift supports anabolism by providing precursors for the biosynthesis of proteins, nucleotides, creatine, porphyrins, phospholipids, and glutathione. Phosphoglycerate dehydrogenase (PHGDH) catalyzes the first step in the serine biosynthesis pathway by converting 3-phosphoglycerate into phosphohydroxy pyruvate (1).

Research studies demonstrate that an increase in serine biosynthesis supports growth and proliferation of cancer cells (2-4), which is supported by amplification and overexpression of PHGDH in a subset of melanoma and breast cancers (5,6). Suppression of PHGDH expression in cell lines with elevated PHGDH levels causes a strong decrease in cell proliferation and inhibits tumor growth *in vivo* (5). Additional evidence suggests that PHGDH interacts with and stabilizes FoxM1, which promotes the proliferation, invasion, and tumorigenicity of glioma cells (7).

Background References

1. Locasale, J.W. (2013) *Nat Rev Cancer* 13, 572-83.
2. Amelio, I. et al. (2013) *Oncogene*, [Epub ahead of print].
3. Ma, L. et al. (2013) *Cell* 152, 599-611.
4. Maddocks, O.D. et al. (2013) *Nature* 493, 542-6.
5. Possemato, R. et al. (2011) *Nature* 476, 346-50.
6. Locasale, J.W. et al. (2011) *Nat Genet* 43, 869-74.
7. Liu, J. et al. (2013) *J Neurooncol* 111, 245-55.

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 nonfat dry milk, 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

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Limited Uses

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