

GCH-I (K-15): sc-48510

BACKGROUND

GTP cyclohydrolase I (GCH-I), a homododecamer, catalyzes the conversion of GTP into dihydroneopterin triphosphate and folate. GCH-I is the first and rate limiting enzyme in tetrahydrobiopterin (BH4) biosynthesis. BH4 is the cofactor for tyrosine hydroxylase, a rate-limiting enzyme for dopamine synthesis, and tryptophan hydroxylase, the rate-limiting enzyme for serotonin biosynthesis. Dopamine and serotonin are neurotransmitters involved in depression, which may be associated with a deficiency of BH4. Mutations in the gene encoding GCH-I cause malignant hyperphen-ylalaninemia, a genetic neurological disorder characterized by abnormally high levels of serum phenylalanine, and dopa-responsive dystonia (DRD), a group of movement disorders characterized by a progressive difficulty in walking which respond to L-dopa.

REFERENCES

- Maita, N., et al. 2002. Crystal structure of the stimulatory complex of GTP cyclohydrolase I and its feedback regulatory protein GFRP. *Proc. Natl. Acad. Sci. USA* 99: 1212-1217.
- Basset, G., et al. 2002. Folate synthesis in plants: the first step of the pterin branch is mediated by a unique bimodular GTP cyclohydrolase I. *Proc. Natl. Acad. Sci. USA* 99: 12489-12494.
- Ishii, M., et al. 2005. Reduction of GTP cyclohydrolase I feedback regulating protein expression by hydrogen peroxide in vascular endothelial cells. *J. Pharmacol. Sci.* 97: 299-302.
- Hagenah, J., et al. 2005. High mutation rate in dopa-responsive dystonia: detection with comprehensive GCHI screening. *Neurology* 64: 908-911.
- Hui xie, H., et al. 2005. Gene symbol: GTP cyclohydrolase I (GCH-I). Disease: dopa-responsive dystonia. *Hum. Genet.* 116: 235.

CHROMOSOMAL LOCATION

Genetic locus: GCH1 (human) mapping to 14q22.2; Gch1 (mouse) mapping to 14 C1.

SOURCE

GCH-I (K-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of GCH-I 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-48510 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

PROTOCOLS

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

APPLICATIONS

GCH-I (K-15) is recommended for detection of GCH-I isoform GCH-1 only of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

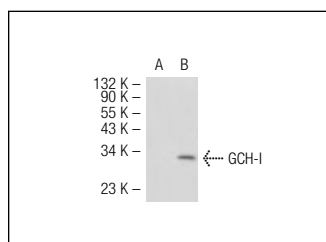
GCH-I (K-15) is also recommended for detection of GCH-I isoform GCH-1 only in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for GCH-I siRNA (h): sc-60675, GCH-I siRNA (m): sc-60676, GCH-I shRNA Plasmid (h): sc-60675-SH, GCH-I shRNA Plasmid (m): sc-60676-SH, GCH-I shRNA (h) Lentiviral Particles: sc-60675-V and GCH-I shRNA (m) Lentiviral Particles: sc-60676-V.

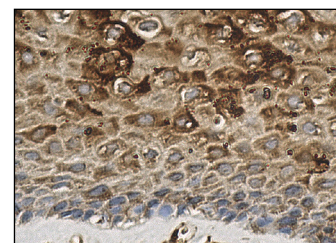
Molecular Weight of GCH-I: 26 kDa.

Positive Controls: GCH-I (m): 293T Lysate: sc-120450 or IMR-32 cell lysate: sc-2409.

DATA



GCH-I (K-15): sc-48510. Western blot analysis of GCH-I expression in non-transfected: sc-117752 (A) and mouse GCH-I transfected: sc-120450 (B) 293T whole cell lysates.



GCH-I (K-15): sc-48510. Immunoperoxidase staining of formalin fixed, paraffin-embedded human cervix tissue showing cytoplasmic staining of squamous epithelial cells.

SELECT PRODUCT CITATIONS

- Berbee, M., et al. 2011. Reduction of radiation-induced vascular nitrosative stress by the vitamin E analog γ-tocotrienol: evidence of a role for tetrahydrobiopterin. *Int. J. Radiat. Oncol. Biol. Phys.* 79: 884-891.
- Tsai, K.D., et al. 2012. Differential effects of LY294002 and wortmannin on inducible nitric oxide synthase expression in glomerular mesangial cells. *Int. Immunopharmacol.* 12: 471-480.

RESEARCH USE

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

MONOS
Satisfaction
Guaranteed

Try **GCH-I (G-8): sc-376483** or **GCH-I (C-4): sc-271482**, our highly recommended monoclonal alternatives to GCH-I (K-15).