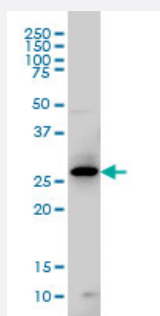


GCH1 monoclonal antibody (M01), clone 4A12

Catalog # H00002643-M01

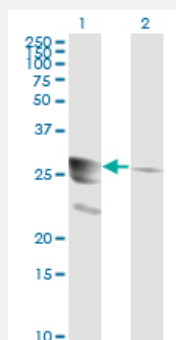
Size 100 ug

Applications



Western Blot (Cell lysate)

GCH1 monoclonal antibody (M01), clone 4A12 Western Blot analysis of GCH1 expression in IMR-32 (Cat # L008V1).

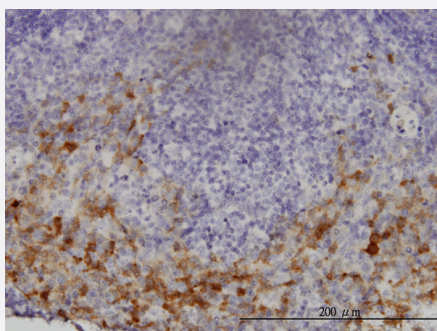


Western Blot (Transfected lysate)

Western Blot analysis of GCH1 expression in transfected 293T cell line by GCH1 monoclonal antibody (M01), clone 4A12.

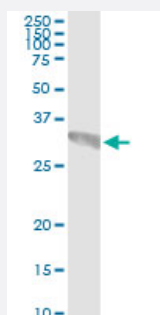
Lane 1: GCH1 transfected lysate(27.9 KDa).

Lane 2: Non-transfected lysate.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections)

Immunoperoxidase of monoclonal antibody to GCH1 on formalin-fixed paraffin-embedded human lymph node. [antibody concentration 3 ug/ml]

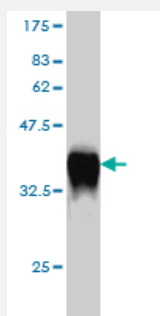
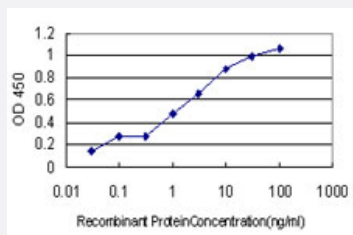


Immunoprecipitation

Immunoprecipitation of GCH1 transfected lysate using anti-GCH1 monoclonal antibody and Protein A Magnetic Bead, and immunoblotted with GCH1 MaxPab rabbit polyclonal antibody.

Sandwich ELISA (Recombinant protein)

Detection limit for recombinant GST tagged GCH1 is approximately 0.3ng/ml as a capture antibody.



Western Blot detection against Immunogen (35.53 KDa) .

Specification

Product Description	Mouse monoclonal antibody raised against a partial recombinant GCH1.
Immunogen	GCH1 (NP_000152, 84 a.a. ~ 172 a.a) partial recombinant protein with GST tag. MW of the GST tag alone is 26 KDa.
Sequence	ENPQRQGLLKTPWRAASAMQFFTKGYQETISDVLNDAIFDEDDHDEMVIKIDMFMSMCEHHLVPFVGKVHIGYLPNKQVLGLSKLARIV
Host	Mouse
Reactivity	Human
Isotype	IgG2a Kappa
Quality Control Testing	Antibody Reactive Against Recombinant Protein. Western Blot detection against Immunogen (35.53 KDa) .
Storage Buffer	In 1x PBS, pH 7.4
Storage Instruction	Store at -20°C or lower. Aliquot to avoid repeated freezing and thawing.

Applications

- Western Blot (Cell lysate)

GCH1 monoclonal antibody (M01), clone 4A12 Western Blot analysis of GCH1 expression in IMR-32 (Cat # L008V1).

[Protocol Download](#)

- Western Blot (Transfected lysate)

Western Blot analysis of GCH1 expression in transfected 293T cell line by GCH1 monoclonal antibody (M01), clone 4A12.

Lane 1: GCH1 transfected lysate(27.9 KDa).

Lane 2: Non-transfected lysate.

[Protocol Download](#)

- Western Blot (Recombinant protein)

[Protocol Download](#)

- Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections)

Immunoperoxidase of monoclonal antibody to GCH1 on formalin-fixed paraffin-embedded human lymph node. [antibody concentration 3 ug/ml]

[Protocol Download](#)

- Immunoprecipitation

Immunoprecipitation of GCH1 transfected lysate using anti-GCH1 monoclonal antibody and Protein A Magnetic Bead, and immunoblotted with GCH1 MaxPab rabbit polyclonal antibody.

[Protocol Download](#)

- Sandwich ELISA (Recombinant protein)

Detection limit for recombinant GST tagged GCH1 is approximately 0.3ng/ml as a capture antibody.

[Protocol Download](#)

- ELISA

Gene Info — GCH1

Entrez GeneID	2643
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GeneBank Accession#	NM_000161
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Protein Accession#	NP_000152
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Gene Name	GCH1
Gene Alias	DYT14, DYT5, GCH, GTP-CH-1, GTPCH1
Gene Description	GTP cyclohydrolase 1
Omim ID	128230 233910 600225
Gene Ontology	Hyperlink
Gene Summary	This gene encodes a member of the GTP cyclohydrolase family. The encoded protein is the first and rate-limiting enzyme in tetrahydrobiopterin (BH4) biosynthesis, catalyzing the conversion of GTP into 7,8-dihydroneopterin triphosphate. BH4 is an essential cofactor required by aromatic amino acid hydroxylases as well as nitric oxide synthases. Mutations in this gene are associated with malignant hyperphenylalaninemia and dopa-responsive dystonia. Several alternatively spliced transcript variants encoding different isoforms have been described; however, not all variants give rise to a functional enzyme. [provided by RefSeq]
Other Designations	guanosine 5'-triphosphate cyclohydrolase I

Publication Reference

- [DJ-1 is an essential downstream mediator in PINK1/parkin-dependent mitophagy.](#)

Dorien Imberechts, Inge Kinnart, Fieke Wauters, Joanne Terbeek, Liselot Manders, Keimpe Wierda, Kristel Eggermont, Rodrigo Furtado Madeiro, Carolyn Sue, Catherine Verfaillie, Wim Vandenberghe.

Brain 2022 Dec; 145(12):4368.

Application: PLA, Human, Human fibroblasts

- [Metabolic determinants of cancer cell sensitivity to canonical ferroptosis inducers.](#)

Mariluz Soula, Ross A Weber, Omkar Zilka, Hanan Alwaseem, Konnor La, Frederick Yen, Henrik Molina, Javier Garcia-Bermudez, Derek A Pratt, Kvanç Birsoy.

Nature Chemical Biology 2020 Dec; 16(12):1351.

Application: WB-Tr, Human, Jurkat cells

- [T Cell-Derived IL-17A Induces Vascular Dysfunction via Perivascular Fibrosis Formation and Dysregulation of NO/cGMP Signaling.](#)

Schüler R, Efentakis P, Wild J, Lagrange J, Garlapati V, Molitor M, Kossmann S, Oelze M, Stamm P, Li H, Schäfer K, Münzel T, Daiber A, Waisman A, Wenzel P, Karch H.

Oxidative Medicine and Cellular Longevity 2019 Jul; 2019:6721531.

Application: WB, Mouse, Aortic, PVAT

- [Mast cell tetrahydrobiopterin contributes to itch in mice.](#)

Zschiebsch K, Fischer C, Wilken-Schmitz A, Geisslinger G, Channon K, Watschinger K, Tegeder I.

Journal of Cellular and Molecular Medicine 2019 Feb; 23(2):985.

Application: IF, Mouse, Macrophages, Mast cells

- [Metformin attenuates fluctuating glucose-induced endothelial dysfunction through enhancing GTPCH1-mediated eNOS recoupling and inhibiting NADPH oxidase.](#)

An H, Wei R, Ke J, Yang J, Liu Y, Wang X, Wang G, Hong T.

Journal of Diabetes and Its Complications 2016 Apr; 30(6):1017.

Application: WB-Ce, Human, HUVEC

- [Effect of soluble guanylyl cyclase activator and stimulator therapy on nitroglycerin-induced nitrate tolerance in rats.](#)

Jabs A, Oelze M, Mikhed Y, Stamm P, Kröller-Schön S, Welschof P, Jansen T, Hausding M, Kopp M, Steven S, Schulz E, Stasch JP, Münzel T, Daiber A.

Vascular Pharmacology 2015 Aug; 71:181.

Application: WB-Ti, Rat, Aortic

- [Inflammatory Monocytes Determine Endothelial Nitric Oxide Synthase Uncoupling and Nitro-oxidative Stress Induced by Angiotensin II.](#)

Kossmann S, Hu H, Steven S, Schonfelder T, Fraccarollo D, Mikhed Y, Brahler M, Knorr M, Brandt M, Karbach SH, Becker C, Oelze M, Bauersachs J, Widder J, Munzel T, Daiber A, Wenzel P.

The Journal of Biological Chemistry 2014 Oct; 289(40):27540.

Application: WB, Mouse, Aortic tissue

- [Redox activation of DUSP4 by N-acetylcysteine protects endothelial cells from Cd2+-induced apoptosis.](#)

Barajas-Espinosa A, Basye A, Jesse E, Yan H, Quan D, Chen CA.

Free Radical Biology & Medicine 2014 Sep; 74:188.

Application: WB-Ce, Bovine, Bovine aortic endothelial cells

- [Inhibition of GTP cyclohydrolase attenuates tumor growth by reducing angiogenesis and M2-like polarization of tumor associated macrophages.](#)

Pickert G, Lim HY, Weigert A, Häussler A, Myrczek T, Waldner M, Labocha S, Ferreirós N, Geisslinger G, Lötsch J, Becker C, Brüne B, Tegeder I.

International Journal of Cancer 2013 Feb; 132(3):591.

Application: IF, WB-Ce, WB-Tr, WB-Ti, Human, Mouse, HUVECs, HT29 cells, Colon, Skin cancer

- [Differential effects of heart rate reduction with ivabradine in two models of endothelial dysfunction and oxidative stress.](#)

Kroller-Schon S, Schulz E, Wenzel P, Kleschyov AL, Hortmann M, Torzewski M, Oelze M, Renne T, Daiber A, Munzel T.
Basic Research in Cardiology 2011 Nov; 106(6):1147.

Application: WB-Ti, Mouse, Mouse aortic homogenates

- [Vascular dysfunction in experimental diabetes is improved by pentaerithryl tetranitrate but not isosorbide-5-mononitrate therapy.](#)

Schuhmacher S, Oelze M, Bollmann F, Kleinert H, Otto C, Heeren T, Steven S, Hausding M, Knorr M, Pautz A, Reifenberg K, Schulz E, Gori T, Wenzel P, Munzel T, Daiber A.
Diabetes 2011 Oct; 60(10):2608.

Application: WB-Ti, Rat, Rat aorta

- [Sepiapterin improves angiogenesis of pulmonary artery endothelial cells with in utero pulmonary hypertension by recoupling endothelial nitric oxide synthase.](#)

Teng RJ, Du J, Xu H, Bakhtashvili I, Eis A, Shi Y, Pritchard KA Jr, Konduri GG.
Am J Physiol Lung Cell Mol Physiol 2011 May; 301:334.

Application: WB-Ce, Bovine, Pulmonary artery endothelial cells

- [Vascular Dysfunction in Streptozotocin-Induced Experimental Diabetes Strictly Depends on Insulin Deficiency.](#)

Oelze M, Knorr M, Schuhmacher S, Heeren T, Otto C, Schulz E, Reifenberg K, Wenzel P, Munzel T, Daiber A.
Journal of Vascular Research 2011 Jan; 48(4):275.

Application: WB, Rat, Aortic tissue

- [Role of angiotensin II on dihydrofolate reductase, GTP-cyclohydrolase 1 and nitric oxide synthase expressions in renal ischemia-reperfusion.](#)

Seujange Y, Eiam-Ong S, Tirawatnpong T, Eiam-Ong S.
American Journal of Nephrology 2008 Apr; 28(4):692.

Application: WB-Ti, Rat, Rat kidney

- [Mechanisms underlying recoupling of eNOS by HMG-CoA reductase inhibition in a rat model of streptozotocin-induced diabetes mellitus.](#)

Wenzel P, Daiber A, Oelze M, Brandt M, Closs E, Xu J, Thum T, Bauersachs J, Ertl G, Zou MH, Forstermann U, Munzel T.
Atherosclerosis 2007 Dec; 198(1):65.

Application: WB, Rat, Rat aortic tissues

- [Regulation of Tetrahydrobiopterin Biosynthesis by Shear Stress.](#)

Widder JD, Chen W, Li L, Dikalov S, Thony B, Hatakeyama K, Harrison DG.
Circulation Research 2007 Aug; 101(8):830.

Application: IP-WB, Human, Human aortic endothelial cells (HAECs)

Pathway

- [Folate biosynthesis](#)
- [Metabolic pathways](#)

Disease

- [Acute Disease](#)
- [Autistic Disorder](#)
- [Cardiovascular Diseases](#)
- [Cerebrovascular Disorders](#)
- [Chromosome Aberrations](#)
- [Chromosome Deletion](#)
- [Chronic Disease](#)
- [Coronary Artery Disease](#)
- [Coronary Disease](#)
- [Diabetes Mellitus](#)
- [Diabetic Angiopathies](#)
- [Dystonia](#)
- [Dystonic Disorders](#)
- [Edema](#)
- [Genetic Predisposition to Disease](#)
- [Hypertension](#)
- [Labor Pain](#)
- [Low Back Pain](#)
- [Mental Retardation](#)
- [Neoplasms](#)

- [Pain](#)
- [Pain Threshold](#)
- [Pancreatitis](#)
- [Parkinson disease](#)
- [Sciatica](#)