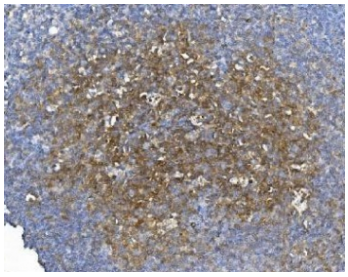
GCHFR Antibody / Tetrahydrobiopterin Metabolism Regulator Antibody (RQ6178)

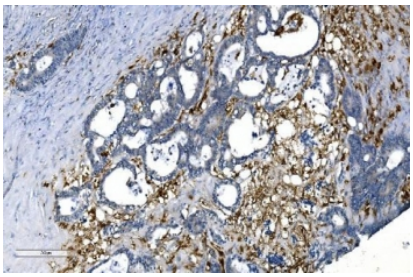
Catalog No.	Formulation	Size
RQ6178	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

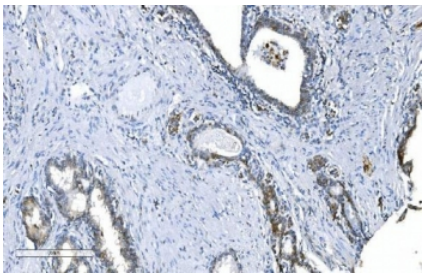
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose and 0.0125% sodium azide
UniProt	P30047
Localization	Cytoplasmic, nuclear
Applications	Western Blot : 1-2ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml Flow Cytometry : 1-3ug/million cells Immunofluorescence : 5ug/ml Direct ELISA : 0.1-0.5ug/ml
Limitations	This GCHFR Antibody / Tetrahydrobiopterin Metabolism Regulator Antibody is available for research use only.



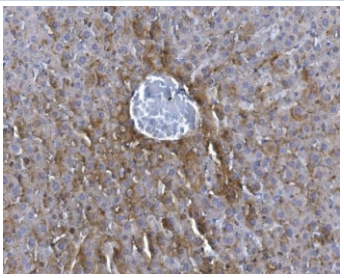
GCHFR Antibody Tonsil IHC. Immunohistochemistry analysis of FFPE human tonsil tissue stained with GCHFR Antibody demonstrates diffuse cytoplasmic HRP-DAB brown staining throughout lymphoid-associated cellular populations, consistent with the role of GTP cyclohydrolase I feedback regulator / GCHFR in tetrahydrobiopterin metabolism and nitric oxide-associated cellular signaling pathways. The observed staining profile aligns with the involvement of BH4 regulatory pathways in immune-associated metabolic activity and cytokine-responsive signaling environments. HIER: boil tissue sections in pH 8 EDTA for 20 min and allow to cool before testing.



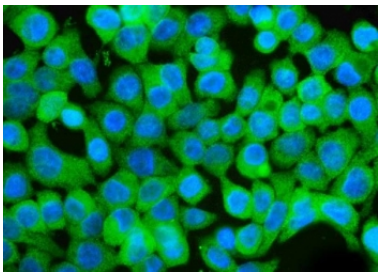
GCHFR Antibody Rectal Cancer IHC. Immunohistochemistry analysis of FFPE human rectal cancer tissue stained with GCHFR Antibody demonstrates granular cytoplasmic HRP-DAB brown staining throughout gland-forming tumor epithelial cellular populations, consistent with expression of GTP cyclohydrolase I feedback regulator / GCHFR in tetrahydrobiopterin-associated metabolic signaling and nitric oxide regulatory pathways. The observed staining pattern aligns with the intracellular metabolic regulatory function of this BH4-associated feedback protein in proliferative epithelial tissue environments. HIER: boil tissue sections in pH 8 EDTA for 20 min and allow to cool before testing.



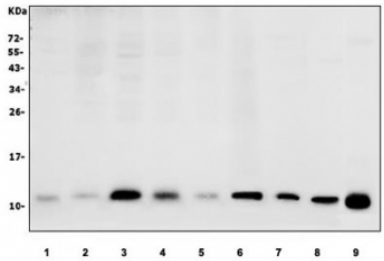
GCHFR Antibody Prostate Cancer IHC. Immunohistochemistry analysis of FFPE human prostate cancer tissue stained with GCHFR Antibody demonstrates cytoplasmic HRP-DAB brown staining within glandular tumor epithelial cellular populations, consistent with the role of GTP cyclohydrolase I feedback regulator / GCHFR in tetrahydrobiopterin metabolism and nitric oxide-associated metabolic regulation pathways. The observed staining profile aligns with the intracellular cofactor regulatory biology of GCHFR within epithelial-associated tissue compartments. HIER: boil tissue sections in pH 8 EDTA for 20 min and allow to cool before testing.



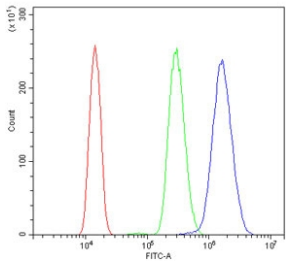
GCHFR Antibody Mouse Liver IHC. Immunohistochemistry analysis of FFPE mouse liver tissue stained with GCHFR Antibody demonstrates diffuse cytoplasmic HRP-DAB brown staining throughout hepatocyte-associated cellular populations, consistent with the role of GTP cyclohydrolase I feedback regulator / GCHFR in tetrahydrobiopterin metabolism and nitric oxide-associated metabolic signaling pathways. The observed hepatic staining profile aligns with the intracellular cofactor regulatory function of GCHFR in metabolic homeostasis and redox-associated cellular regulation. HIER: boil tissue sections in pH 8 EDTA for 20 min and allow to cool before testing.



GCHFR Antibody Caco-2 IF. Immunofluorescence analysis of FFPE human Caco-2 cells stained with GCHFR Antibody demonstrates diffuse cytoplasmic green fluorescence consistent with the localization of GTP cyclohydrolase I feedback regulator / GCHFR, a BH4-associated metabolic regulatory protein involved in nitric oxide signaling and cofactor homeostasis pathways. DAPI nuclear counterstain is shown in blue. HIER: steam sections in pH 6 citrate buffer for 20 min prior to staining.



GCHFR Antibody Multi-Species WB. Western blot analysis of human HEK293, K562, HepG2, Caco-2, HeLa, U937, and PC-3 cell lysates together with rat liver and mouse liver tissue lysates using GCHFR Antibody demonstrates bands at approximately 12 kDa, consistent with the predicted molecular weight of GTP cyclohydrolase I feedback regulator / GCHFR. The observed cross-species expression profile aligns with the role of GCHFR as a tetrahydrobiopterin-associated metabolic regulatory protein involved in nitric oxide signaling, cofactor homeostasis, and cellular redox-associated pathways. Stronger signal intensity is observed in HepG2, U937, rat liver, and mouse liver lysates, consistent with metabolically active tissue-associated expression patterns.



GCHFR Antibody HL60 FACS. Flow cytometry analysis of HL60 cells stained with GCHFR Antibody demonstrates a clear rightward shift of the positive cell population relative to the isotype control, consistent with detection of GTP cyclohydrolase I feedback regulator / GCHFR expression in metabolically active hematopoietic-derived cells. Blue=GCHFR antibody, Green=isotype control, Red=cells alone control. The observed staining profile aligns with the role of GCHFR in tetrahydrobiopterin metabolism, nitric oxide-associated signaling, and intracellular cofactor regulatory pathways.

Description

GTP cyclohydrolase I feedback regulator (GCHFR), also known as GFRP, is a metabolic regulatory protein involved in tetrahydrobiopterin (BH4) homeostasis and nitric oxide-associated signaling pathways. The GCHFR Antibody / Tetrahydrobiopterin Metabolism Regulator Antibody is designed for detection of GCHFR expression in studies involving BH4 biosynthesis, nitric oxide metabolism, amino acid hydroxylation pathways, and metabolic cofactor-associated regulatory signaling.

GCHFR is encoded by the GCHFR gene on chromosome 15q15 and functions as a key feedback regulatory component controlling the activity of GTP cyclohydrolase I, the rate-limiting enzyme responsible for tetrahydrobiopterin biosynthesis. BH4 serves as an essential cofactor for nitric oxide synthases and aromatic amino acid hydroxylases involved in synthesis of dopamine, serotonin, norepinephrine, and additional neurotransmitter-associated metabolic products. Through regulation of GTP cyclohydrolase I activity, GCHFR contributes to maintenance of intracellular BH4 availability and coordinated metabolic signaling homeostasis.

BH4 metabolism plays a central role in endothelial nitric oxide production, vascular relaxation signaling, neurotransmitter biosynthesis, amino acid metabolism, and oxidative stress-associated regulatory pathways. Altered BH4 homeostasis has been associated with endothelial dysfunction, cardiovascular disease, inflammatory signaling abnormalities, neurologic disorders, and oxidative stress-mediated tissue injury. Because GCHFR functions within the core regulatory network governing BH4 synthesis and utilization, the protein is frequently studied alongside nitric oxide synthase pathways, endothelial signaling regulators, and neurotransmitter-associated metabolic enzymes.

GCHFR-associated signaling has also attracted substantial interest in immunology and inflammatory biology due to the role of nitric oxide metabolism in cytokine-responsive signaling pathways and redox-sensitive cellular responses. Nitric oxide production contributes to vascular permeability regulation, inflammatory signaling cascades, immune-associated oxidative stress responses, and macrophage-associated defense pathways. Changes in BH4 availability may therefore influence multiple aspects of inflammatory adaptation and stress-responsive metabolic regulation.

In addition to vascular and inflammatory biology, GCHFR has emerged as an important target in metabolic and neurologic disease research involving dopamine-associated signaling pathways and neurotransmitter biosynthesis disorders. Dysregulated BH4 metabolism may alter aromatic amino acid hydroxylase activity and contribute to abnormalities involving catecholamine and serotonin-associated pathways. These biologic relationships continue to support broad research interest in GCHFR across cardiovascular biology, neuroscience, immunology, and metabolic signaling studies.

The rabbit polyclonal format supports recognition of multiple GCHFR-associated epitopes and is suitable for broad research applications including western blotting, immunohistochemistry, immunofluorescence, and flow cytometry analysis. Immunohistochemical and immunofluorescent staining using GCHFR antibodies commonly demonstrates cytoplasmic localization patterns consistent with the metabolic regulatory function of this intracellular cofactor-associated protein.

GCHFR continues to serve as an important target in studies involving tetrahydrobiopterin metabolism, nitric oxide signaling, vascular biology, neurotransmitter synthesis, oxidative stress pathways, and metabolic cofactor regulation.

Additional antibodies involved in nitric oxide signaling, metabolic cofactor regulation, vascular biology, and oxidative stress-associated pathways can be explored within our Metabolism Antibodies collection.

Application Notes

Optimal dilution of the GCHFR Antibody / Tetrahydrobiopterin Metabolism Regulator Antibody should be determined by the researcher.

Immunogen

A human recombinant partial protein (amino acids P2-E84) was used as the immunogen for the GCHFR antibody.

Storage

After reconstitution, the GCHFR antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

GCHFR antibody, GTP cyclohydrolase I feedback regulator antibody, BH4 metabolism regulator antibody, Tetrahydrobiopterin regulatory protein antibody, Nitric oxide cofactor regulator antibody