

Store at
-20C
#45710**DHFR Antibody**

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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 Mk	Endogenous	22	Rabbit	#P00374	1719

Product Usage Information**Application**

Western Blotting

Dilution

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

DHFR Antibody recognizes endogenous levels of total DHFR protein. This antibody does not cross-react with DHFRL1 protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human DHFR protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Dihydrofolate reductase (DHFR) catalyzes tetrahydrofolate regeneration through the reduction of dihydrofolate using NADPH as a cofactor (1). As a key enzyme in folate metabolism, DHFR is ubiquitously expressed in the mitochondria, and is essential for the synthesis of purines, pyrimidines, and some amino acids (2). DHFR is capable of translational autoregulation by binding within the coding region of its own mRNA sequence to repress cellular DHFR protein levels (3). Mutations in the DHFR gene are known to cause inborn errors of folate metabolism resulting in megaloblastic anemia, pancytopenia, and severe cerebral folate deficiency (4). Because tetrahydrofolate is essential for DNA synthesis, cell growth, and proliferation, DHFR is a target of chemotherapeutic agents (e.g., methotrexate and pemetrexed) used in the treatment of many cancer types (5). Increased expression of DHFR has also been identified as a potential mechanism for tumor resistance to methotrexate, and therefore has been utilized as a clinical biomarker to predict patient responsiveness to folate antagonists (6,7).

Background References

1. Davies, J.F. et al. (1990) *Biochemistry* 29, 9467-79.
2. Schnell, J.R. et al. (2004) *Annu Rev Biophys Biomol Struct* 33, 119-40.
3. Ercikan-Abali, E.A. et al. (1997) *Biochemistry* 36, 12317-22.
4. Banka, S. et al. (2011) *Am J Hum Genet* 88, 216-25.
5. Vander Heiden, M.G. and DeBerardinis, R.J. (2017) *Cell* 168, 657-69.
6. Nakano, M. et al. (2017) *J Biol Chem* 292, 4873-84.
7. Organista-Nava, J. et al. (2018) *Oncol Lett* 15, 8405-11.

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 **Mk:** Monkey

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