

DHFR (49): sc-136246

BACKGROUND

Dihydrofolate reductase (DHFR) catalyzes the NADPH-dependent reduction of dihydrofolate to tetrahydrofolate, and is a crucial enzyme for the synthesis of purines, pyrimidines and some amino acids. Inhibition of the activity of this enzyme leads to arrest of DNA synthesis and cell death. Gene expression of methotrexate (MTX)-resistant variants of DHFR in normal hematopoietic cells is a potential strategy to permit administration of larger doses of MTX by alleviating drug toxicity in normal cells and tissues that are drug sensitive.

REFERENCES

- Walker, V.K., et al. 2000. Tobacco budworm dihydrofolate reductase is a promising target for insecticide discovery. *Eur. J. Biochem.* 267: 394-403.
- Li, R., et al. 2000. Three-dimensional structure of *M. tuberculosis* dihydrofolate reductase reveals opportunities for the design of novel tuberculosis drugs. *J. Mol. Biol.* 295: 307-323.
- Yoshikawa, T., et al. 2000. Amplified gene location in chromosomal DNA affected recombinant protein production and stability of amplified genes. *Biotechnol. Prog.* 16: 710-715.
- Belur, L.R., et al. 2001. Methotrexate accumulates to similar levels in animals transplanted with normal versus drug-resistant transgenic marrow. *Cancer Res.* 61: 1522-1526.
- Grillari, J., et al. 2001. Analysis of alterations in gene expression after amplification of recombinant genes in CHO cells. *J. Biotechnol.* 87: 59-65.

CHROMOSOMAL LOCATION

Genetic locus: DHFR (human) mapping to 5q14.1; Dhfr (mouse) mapping to 13 C3.

SOURCE

DHFR (49) is a mouse monoclonal antibody raised against amino acids 1-186 of DHFR of bovine origin.

PRODUCT

Each vial contains 50 µg IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-136246 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

RESEARCH USE

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

PROTOCOLS

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

APPLICATIONS

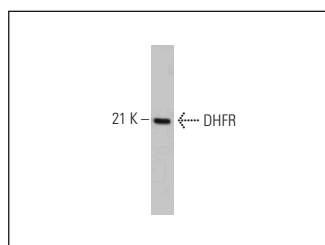
DHFR (49) is recommended for detection of DHFR of mouse, rat, human, bovine and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for DHFR siRNA (h): sc-37078, DHFR siRNA (m): sc-37079, DHFR shRNA Plasmid (h): sc-37078-SH, DHFR shRNA Plasmid (m): sc-37079-SH, DHFR shRNA (h) Lentiviral Particles: sc-37078-V and DHFR shRNA (m) Lentiviral Particles: sc-37079-V.

Molecular Weight of DHFR: 25 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A-431 whole cell lysate: sc-2201 or Hep G2 cell lysate: sc-2227.

DATA



DHFR (49): sc-136246. Western blot analysis of DHFR expression in RSV-3T3 whole cell lysate.

SELECT PRODUCT CITATIONS

- Chin, C.L., et al. 2015. Engineering selection stringency on expression vector for the production of recombinant human α 1-antitrypsin using Chinese hamster ovary cells. *BMC Biotechnol.* 15: 44.
- Zhou, S., et al. 2018. MiR-139 promotes differentiation of bovine skeletal muscle-derived satellite cells by regulating DHFR gene expression. *J. Cell. Physiol.* 234: 632-641.
- Zhang, Z., et al. 2019. PPAR δ agonist prevents endothelial dysfunction via induction of dihydrofolate reductase gene and activation of tetrahydrobiopterin salvage pathway. *Br. J. Pharmacol.* 176: 2945-2961.
- Wang, C., et al. 2020. CTRP13 preserves endothelial function by targeting GTP cyclohydrolase 1 in diabetes. *Diabetes* 69: 99-111.



See **DHFR (A-9): sc-377091** for DHFR antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.