

DHFR (C-20): sc-14780

BACKGROUND

Dihydrofolate reductase (DHFR) is a crucial enzyme for the synthesis of purines, pyrimidines and some amino acids. DHFR catalyzes the NADPH-dependent reduction of dihydrofolate to tetrahydrofolate, and it is essential for the synthesis of thymidylate, purines and several amino acids. Inhibition of the enzyme's activity 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

1. Walker, V.K., et al. 2000. Tobacco budworm dihydrofolate reductase is a promising target for insecticide discovery. *Eur. J. Biochem.* 267: 394-403.
2. 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.
3. 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.
4. 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.

CHROMOSOMAL LOCATION

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

SOURCE

DHFR (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of DHFR 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-14780 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.

RESEARCH USE

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

PROTOCOLS

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

APPLICATIONS

DHFR (C-20) is recommended for detection of DHFR and DHFR1 of human origin and DHFR of mouse and rat 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

DHFR (C-20) is also recommended for detection of DHFR in additional species, including equine, canine, bovine and porcine.

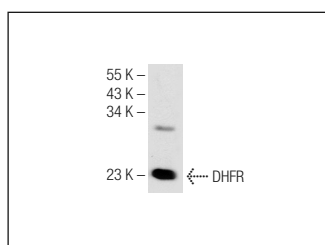
Molecular Weight of DHFR: 25 kDa.

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

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



DHFR (C-20): sc-14780. Western blot analysis of DHFR expression in HeLa whole cell lysates.

SELECT PRODUCT CITATIONS

1. Santiago, Y., et al. 2008. Targeted gene knockout in mammalian cells by using engineered zinc-finger nucleases. *Proc. Natl. Acad. Sci. USA* 105: 5809-5814.

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Try **DHFR (A-9): sc-377091** or **DHFR (C-4): sc-393154**, our highly recommended monoclonal alternatives to DHFR (C-20). Also, for AC, HRP, FITC, PE, Alexa Fluor[®] 488 and Alexa Fluor[®] 647 conjugates, see **DHFR (A-9): sc-377091**.