SANTA CRUZ BIOTECHNOLOGY, INC.

DHFR (E-18): sc-14778

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.

CHROMOSOMAL LOCATION

Genetic locus: DHFR (human) mapping to 5q14.1, DHFRL1 (human) mapping to 3q11.1; Dhfr (mouse) mapping to 13 C3.

SOURCE

DHFR (E-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region 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-14778 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.

APPLICATIONS

DHFR (E-18) is recommended for detection of DHFR and DHFRL1 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), immunohistochemistry (including paraffin-embedded sections) (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 (E-18) is also recommended for detection of DHFR and DHFRL1 in additional species, including equine, canine and porcine.

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

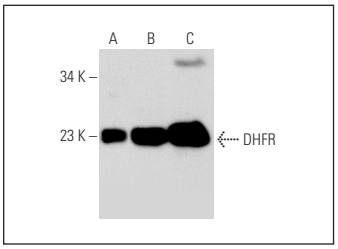
Molecular Weight of DHFR: 25 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A-431 whole cell lysate: sc-2201 or DHFR (h2): 293T Lysate: sc-170387.

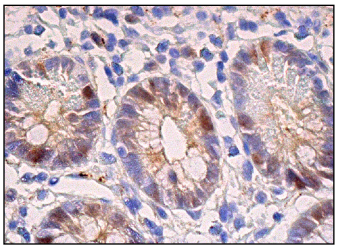
RECOMMENDED SECONDARY REAGENTS

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. 4) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



DHFR (E-18): sc-14778. Western blot analysis of DHFR expression in non-transfected 293T: sc-117752 (**A**), human DHFR transfected 293T: sc-170387 (**B**) and HeLa (**C**) whole cell lysates.



DHFR (E-18): sc-14778. Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing nuclear staining of subsets of glandular cells.

SELECT PRODUCT CITATIONS

1. Remy, I., et al. 2007. Detection of protein-protein interactions using a simple survival protein-fragment complementation assay based on the enzyme dihydrofolate reductase. Nat. Protoc. 2: 2120-2125.
2. Maguire, M., et al. 2008. MDM2 regulates dihydrofolate reductase activity through monoubiquitination. Cancer Res. 68: 3232-3242.
3. Cario, H., et al. 2011. Dihydrofolate reductase deficiency due to a homozygous DHFR mutation causes megaloblastic anemia and cerebral folate deficiency leading to severe neurologic disease. Am. J. Hum. Genet. 88: 226-231.
4. Patki, M., et al. 2014. Glucocorticoid receptor status is a principal determinant of variability in the sensitivity of non-small-cell lung cancer cells to pemetrexed. J. Thorac. Oncol. 9: 519-526.