SANTA CRUZ BIOTECHNOLOGY, INC.

MTHFD1 (h): 293T Lysate: sc-171409

BACKGROUND

Methylenetetrahydrofolate dehydrogenase 1 (MTHFD1) is a 935 amino acid, folate-dependent protein that is responsible for the consecutive interconversion of tetrahydrofolate derivatives which drive the synthesis of purine, methionine, and thymidylate. The cytosolic MRHFD1 contains 3 subunits, 5,10-methylenetetrahydrofolate dehydrogenase, 5,10-methenyltetrahydrofolate cyclohydrolase, and 10-formyltetrahydrofolate synthetase, each with distinct activities. MTHFD1 functions as a homodimer consisting of two major domains, an N-terminal containing the dehydrogenase and cyclohydrolase activities and a larger synthetase domain in the C-terminus. Mutations in the MTHFD1 gene in pregnant women are associated with an increased risk of giving birth to a child with a neural tube defect, along with a possible risk of decreased embryo survival. MTHFD1 also plays a role in migraine development, since folate metabolism is involved in migraine pathophysiology, mainly in migraine with aura.

REFERENCES

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6. Oterino, A., et al. 2005. Thymidylate synthase promoter tandem repeat and MTHFD1 R653Q polymorphisms modulate the risk for migraine conferred by the MTHFR T677 allele. Brain Res. Mol. Brain Res. 139: 163-168.
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CHROMOSOMAL LOCATION

Genetic locus: MTHFD1 (human) mapping to 14q23.3.

PRODUCT

MTHFD1 (h): 293T Lysate represents a lysate of human MTHFD1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

MTHFD1 (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive MTHFD1 antibodies. Recommended use: 10-20 µl per lane.

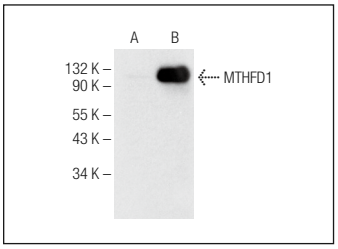
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

MTHFD1 (A-1): sc-271444 is recommended as a positive control antibody for Western Blot analysis of enhanced human MTHFD1 expression in MTHFD1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

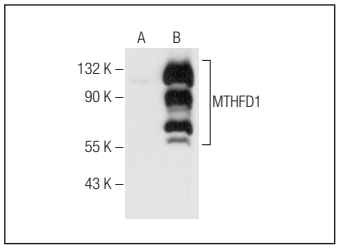
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



MTHFD1 (A-1): sc-271444. Western blot analysis of MTHFD1 expression in non-transfected: sc-117752 (**A**) and human MTHFD1 transfected: sc-171409 (**B**) 293T whole cell lysates.



MTHFD1/1L (D-9): sc-376722. Western blot analysis of MTHFD1 expression in non-transfected: sc-117752 (**A**) and human MTHFD1 transfected: sc-171409 (**B**) 293T whole cell lysates.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. 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.