SANTA CRUZ BIOTECHNOLOGY, INC.

DPYD (E-13): sc-34063

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Dihydropyrimidine dehydrogenase (DPYD) catalyzes the first rate-limiting step of the NADPH-dependent catabolism of uracil and thymine to dihydrouracil and dihydrothymine; thus, a deficiency of DPYD leads to an accumulation of uracil and thymine. Abnormal concentrations of these metabolites in bodily fluids may be the cause of neurological disease and a contraindication for treatment of cancer patients with certain pyrimidine analogs. DPYD also catalyzes the anticancer agent 5-fluorouracil (5-FU) pathway and is involved in the efficacy and toxicity of 5-FU. Variations in DPYD concentration may arise from alterations at the transcriptional level of the dihydropyrimidine dehydrogenase gene. Specifically, hypermethylation of the DPYD promoter downregulates dihydropyrimidine dehydrogenase expression. Deficient DPYD alleles may constitute a risk factor for severe toxicity following treatment with 5-FU.

REFERENCES

1. Godtel, R., et al. 1978. Puerperal psychoses. Geburtshilfe Frauenheilkd. 38: 304-316.
2. Tuchman, M., et al. 1989. Dihydropyrimidine dehydrogenase activity in human blood mononuclear cells. Enzyme 42: 15-24.
3. van Gennip, A.H., et al. 1997. Inborn errors of pyrimidine degradation: clinical, biochemical and molecular aspects. J. Inherit. Metab. Dis. 20: 203-213.
4. Johnson, M.R., et al. 1997. Semi-automated radioassay for determination of dihydropyrimidine dehydrogenase (DPD) activity. Screening cancer patients for DPD deficiency, a condition associated with 5-fluorouracil toxicity. J. Chromatogr. B Biomed. Sci. Appl. 696: 183-191.
5. Fischer, J., et al. 2003. Mutational analysis of the human dihydropyrimidine dehydrogenase gene by denaturing high-performance liquid chromatography. Genet. Test. 7: 97-105.
6. Enns, G.M., et al. 2004. Head imaging abnormalities in dihydropyrimidine dehydrogenase deficiency. J. Inherit. Metab. Dis. 27: 513-522.
7. Al-Sanna'a, N.A., et al. 2005. Dihydropyrimidine dehydrogenase deficiency presenting at birth. J. Inherit. Metab. Dis. 28: 793-796.

CHROMOSOMAL LOCATION

Genetic locus: DPYD (human) mapping to 1p21.3; Dpyd (mouse) mapping to 3 G1.

SOURCE

DPYD (E-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of DPYD 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-34063 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

DPYD (E-13) is recommended for detection of DPYD of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

DPYD (E-13) is also recommended for detection of DPYD in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for DPYD siRNA (h): sc-45326, DPYD siRNA (m): sc-45327, DPYD shRNA Plasmid (h): sc-45326-SH, DPYD shRNA Plasmid (m): sc-45327-SH, DPYD shRNA (h) Lentiviral Particles: sc-45326-V and DPYD shRNA (m) Lentiviral Particles: sc-45327-V.

Molecular Weight of DPYD: 111 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, HL-60 whole cell lysate: sc-2209 or HeLa whole cell lysate: sc-2200.

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) 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.

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.