

dCK (2243C2): sc-81245

BACKGROUND

The dCK/dGK family of proteins includes four different deoxyribonucleoside kinases including the cytoplasmic (TK1) and mitochondrial (TK2) thymidine kinases, and the deoxycytidine (dCK) and deoxyguanosine (dGK) kinases. Deoxyribonucleoside kinases catalyze the 5'-phosphorylation of 2'-deoxyribonucleosides with nucleoside triphosphates (NTPs) as phosphate donors. The dCK enzyme is associated with drug resistance and sensitivity, as both dCK and TK2 phosphorylate several antiviral and chemotherapeutic nucleoside analogs. Deficiency of dCK activity corresponds with resistance to antiviral and chemotherapeutic agents. dCK and TK1 localize to the cytosol, whereas dGK and TK2 localize to the mitochondria. These deoxyribonucleoside kinases are most abundantly expressed in muscle, brain and liver.

REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 125450. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
2. Galmarini, C.M., et al. 2005. The prognostic value of cN-II and cN-III enzymes in adult acute myeloid leukemia. *Haematologica* 90: 1699-1701.
3. Bergman, A.M., et al. 2005. *In vivo* induction of re of ribonucleotide reductase subunit M1 as the major determinant. *Cancer Res.* 65: 9510-9516.
4. Karbownik, M., et al. 2005. Increased expression of mRNA specific for thymidine kinase, deoxycytidine kinase or thymidine phosphorylase in human papillary thyroid carcinoma. *Cancer Lett.* 225: 267-273.
5. Hubeek, I., et al. 2005. Immunocytochemical detection of deoxycytidine kinase in haematological malignancies and solid tumours. *J. Clin. Pathol.* 58: 695-699.
6. Smal, C., et al. 2006. Identification of *in vivo* phosphorylation sites on human deoxycytidine kinase. Role of Ser-74 in the control of enzyme activity. *J. Biol. Chem.* 281: 4887-4893.

CHROMOSOMAL LOCATION

Genetic locus: DCK (human) mapping to 4q13.3.

SOURCE

dCK (2243C2) is a mouse monoclonal antibody raised against a recombinant protein corresponding to a region near the N-terminus of dCK of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 1.0% stabilizer protein.

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

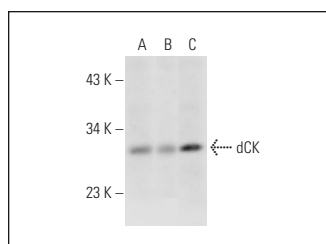
dCK (2243C2) is recommended for detection of dCK of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for dCK siRNA (h): sc-60509, dCK shRNA Plasmid (h): sc-60509-SH and dCK shRNA (h) Lentiviral Particles: sc-60509-V.

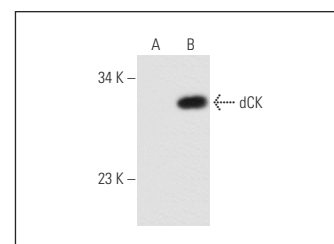
Molecular Weight of dCK: 30 kDa.

Positive Controls: dCK (h): 293T Lysate: sc-111746, Jurkat whole cell lysate: sc-2204 or K-562 whole cell lysate: sc-2203.

DATA



dCK (2243C2): sc-81245. Western blot analysis of dCK expression in K-562 (A), Raji (B) and Jurkat (C) whole cell lysates.



dCK (2243C2): sc-81245. Western blot analysis of dCK expression in non-transfected: sc-117752 (A) and human dCK transfected: sc-111746 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Geutjes, E.J., et al. 2011. Deoxycytidine kinase is overexpressed in poor outcome breast cancer and determines responsiveness to nucleoside analogs. *Breast Cancer Res. Treat.* 131: 809-818.
2. Klanova, M., et al. 2014. Downregulation of deoxycytidine kinase in cytarabine-resistant mantle cell lymphoma cells confers cross-resistance to nucleoside analogs gemcitabine, fludarabine and cladribine, but not to other classes of anti-lymphoma agents. *Mol. Cancer* 13: 159.
3. Lorkova, L., et al. 2015. Detailed functional and proteomic characterization of fludarabine resistance in mantle cell lymphoma cells. *PLoS ONE* 10: e0135314.
4. Huang, Y.H., et al. 2016. Insights from HuR biology point to potential improvement for second-line ovarian cancer therapy. *Oncotarget* 7: 21812-21824.
5. Fatima, M., et al. 2019. Recombinant deoxyribonucleoside kinase from *Drosophila melanogaster* can improve gemcitabine based combined gene/chemotherapy for targeting cancer cells. *Bosn. J. Basic Med. Sci.* 19: 342-349.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.