Mouse Deoxycytidine Kinase (DCK) ELISA Kit

Cat. No. KITG-047 **Lot. No.** (See product label)

SPECIFICATION

Product Overview	This ELISA kit is designed for the quantitative determination of deoxycytidine kinase (DCK) activity in mouse serum, plasma, cell culture supernatant, and tissue homogenate samples. The kit employs a double-antibody sandwich ELISA method with high sensitivity and specificity. Deoxycytidine kinase (DCK) is a key enzyme in the salvage pathway of pyrimidine nucleotide metabolism, catalyzing the phosphorylation of deoxycytidine, deoxyuridine, and deoxyguanosine to their corresponding monophosphates.
Species	Mouse
Description	This Mouse Deoxycytidine Kinase (DCK) ELISA Kit provides a reliable and convenient double-antibody one-step sandwich enzyme-linked immunosorbent assay (ELISA) method for quantifying DCK activity in mouse biological samples. The kit uses microplates pre-coated with anti-DCK capture antibody. Samples, standards, and HRP-conjugated detection antibody are added sequentially to the wells, followed by incubation and thorough washing. TMB substrate is used for color development; TMB turns blue under peroxidase catalysis and then converts to yellow upon acidification. The color intensity is positively correlated with DCK activity in the sample. Absorbance (OD value) is measured at 450 nm using a microplate reader, and sample activity is calculated based on the standard curve. The kit supports preclinical research in oncology, pharmacology, and nucleotide metabolism studies.
Form	Ready-to-use ELISA Kit

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Applications	Quantitative determination of mouse deoxycytidine kinase (DCK) activity in serum samples; Quantitative determination of mouse DCK activity in plasma samples (EDTA, citrate, or heparin anticoagulated); Quantitative determination of mouse DCK activity in cell culture supernatant samples; Quantitative determination of mouse DCK activity in tissue homogenate samples; Preclinical research in oncology, pharmacology, and nucleotide metabolism studies
Notes	This kit is for research use only and not for use in diagnostic or clinical procedures. Store the kit at 2-8°C. Allow all components to equilibrate at room temperature for 20 minutes before use. Crystals may form in the concentrated wash buffer when stored at low temperature; this is normal. Warm in a water bath to dissolve completely before use. Unused plate strips should be immediately returned to the sealed bag and stored at 4°C. All liquid components should be shaken well before use. Avoid cross-contamination between reagents and samples. Do not pipette by mouth. Avoid contact with skin and eyes. In case of contact, rinse immediately with plenty of water. The S0 standard (0 U/L) serves as the negative control or blank. Samples are diluted 5-fold during the assay; multiply the final calculated result by 5 to obtain the actual sample activity. Strictly follow the incubation times, reagent volumes, and sequence of operations as specified in the protocol. Bring all kit components to room temperature (20-25°C) for at least 20 minutes before starting the assay. Plan the plate layout in advance, designating positions for standards, samples, and blank wells. Briefly centrifuge all vials before opening to ensure contents are at the bottom. For research use only. Not for use in diagnostic or clinical procedures.
Storage	Store at 2-8°C, protected from light and moisture. Stable for 6 months.
Shipping	Shipped at ambient temperature with ice packs. Upon receipt, store immediately at 2-8°C.
Reaction conditions	Coating: Pre-coated with anti-DCK capture antibody Incubation temperature: 37°C

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	Incubation time: 60 min (after adding HRP-conjugated detection antibody) Substrate incubation: 37°C, 15 min, protected from light Stop solution addition: 50 µL per well Measurement wavelength: 450 nm Reading time: Within 15 min after adding stop solution Assay time: Approximately 2 hours (excluding sample preparation and data analysis time)
EC	2.7.1.74; 2.7.1.113; 2.7.1.76
Unit definition	Activity is expressed in U/L (Units per Liter), determined by the enzymatic conversion rate under standard assay conditions. Sensitivity: Minimum detectable activity < 1.0 U/L Detection range: 1.0 – 80 U/L Standard curve concentrations: 0, 5, 10, 20, 40, 80 U/L
Usage	Kit Components (96-well format): Microplate (pre-coated with anti-DCK antibody): 12 wells × 8 strips Standards (S0-S5): 6 vials, 0.3 mL each; concentrations: 0, 5, 10, 20, 40, 80 U/L Sample Diluent: 6 mL HRP-conjugated Detection Antibody: 10 mL 20× Wash Buffer: 25 mL Substrate A (TMB Buffer): 6 mL Substrate B (TMB Chromogen): 6 mL Stop Solution: 6 mL Plate Sealer: 2 sheets Kit Components (48-well format): Microplate (pre-coated with anti-DCK antibody): 12 wells × 4 strips Standards (S0-S5): 6 vials, 0.3 mL each; concentrations: 0, 5, 10, 20, 40, 80 U/L Sample Diluent: 3 mL HRP-conjugated Detection Antibody: 5 mL 20× Wash Buffer: 15 mL Substrate A (TMB Buffer): 3 mL Substrate B (TMB Chromogen): 3 mL Stop Solution: 3 mL Plate Sealer: 2 sheets Materials Required but Not Supplied: Microplate reader capable of measuring absorbance at 450 nm High-precision pipettes and tips: 0.5-10 µL, 2-20 µL, 20-200 µL, 200-1000 µL 37°C incubator or water bath Distilled or deionized water for wash buffer dilution Absorbent paper or towel for blotting Timer Vortex mixer (recommended) Preparation: 1. Bring all kit components to room temperature (20-25°C) for at least 20 minutes before starting the assay. 2. Prepare 1× wash buffer by diluting the 20× concentrated wash buffer 1:20 with distilled water (e.g., 1 mL 20× wash buffer + 19 mL distilled water). Mix thoroughly. 3. Briefly centrifuge all vials

before opening to ensure contents are at the bottom. 4. Plan the plate layout in advance, designating positions for standards, samples, and blank wells. Sample Collection and Processing: 1. Serum: Collect blood in tubes without pyrogen or endotoxin. Avoid cell stimulation during handling. Centrifuge at 3000 rpm for 10 minutes to separate serum from red blood cells. 2. Plasma: Use EDTA, citrate, or heparin as anticoagulant. Centrifuge at 3000 rpm for 30 minutes and collect the supernatant. 3. Cell Culture Supernatant: Centrifuge at 3000 rpm for 10 minutes to remove particulates and polymers. 4. Tissue Homogenate: Mince tissue in appropriate volume of physiological saline. Centrifuge at 3000 rpm for 10 minutes and collect the supernatant. 5. Storage: If samples cannot be tested immediately, aliquot into single-use volumes and freeze at -20°C. Avoid repeated freeze-thaw cycles. Thaw at room temperature and ensure samples are completely and uniformly thawed before assay. Assay Protocol: 1. Remove the required number of plate strips from the foil pouch after 20-minute room temperature equilibration. Reseal unused strips in the provided bag and store at 4°C. 2. Set up standard wells and sample wells on the plate. Add 50 µL of each standard (0, 5, 10, 20, 40, 80 U/L) to the designated standard wells. 3. For sample wells, add 10 µL of test sample, followed by 40 µL of sample diluent. Do not add anything to blank wells. 4. Add 100 µL of HRP-conjugated detection antibody to each standard well and sample well (do not add to blank wells). Seal the plate with a plate sealer. 5. Incubate at 37°C (water bath or incubator) for 60 minutes. 6. After incubation, discard the liquid from the wells. Blot the plate dry on absorbent paper. 7. Wash each well: fill with 1× wash buffer, let stand for 1 minute, discard, and blot dry. Repeat 5 times. (Alternatively, use an automated plate washer: inject 350 µL per well, soak for 1 minute, wash 5 times). 8. Add 50 µL of Substrate A and 50 µL of Substrate B to each well. 9. Incubate at 37°C protected from light for 15 minutes. 10. Add 50 µL of stop solution to each well. 11. Measure the absorbance (OD value) of each well at 450 nm within 15 minutes using a microplate reader. Data Analysis: 1. Standard Curve Construction: In Excel or compatible software, enter the standard activity values (0, 5, 10, 20, 40, 80 U/L) in the X-axis column and the

corresponding OD450 values in the Y-axis column. Generate a scatter plot and perform linear regression to obtain the best-fit curve equation (typically y = ax + b, where y = OD value, x = activity). 2. Sample Activity Calculation: Substitute the sample OD value into the standard curve equation to calculate the activity value. Multiply the calculated value by 5 (sample dilution factor: 10 µL sample + 40 µL diluent) to obtain the actual sample activity in U/L. 3. Quality Control: Verify that the standard curve $R^2 \geq 0.9900$. Check that the blank well (S0) OD value is within acceptable range. Ensure intra-assay CV < 15% by running duplicate or triplicate samples. Performance Characteristics: • Accuracy: Correlation coefficient (R^2) of standard curve linear regression ≥ 0.9900 • Sensitivity: Minimum detectable activity < 1.0 U/L • Detection Range: 1.0 – 80 U/L • Specificity: No cross-reactivity with other soluble structurally similar analogs • Precision: Intra-assay and inter-assay coefficient of variation (CV) < 15%

GENE INFORMATION

Gene Name	Dck
Official Symbol	Dck
Synonyms	Deoxycytidine kinase; dCK; deoxynucleoside kinase
Gene ID	13178
mRNA Refseq	NM_007860
Protein Refseq	NP_031886
UniProt ID	P43346

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