SANTA CRUZ BIOTECHNOLOGY, INC.

UDG (B-7): sc-390255

The Power to Question

BACKGROUND

When misincorporation or cytosine deamination positions the RNA nucleotide uracil into DNA, uracil-DNA gycosylase (UDG) excises the uracil via a repair enzymatic pathway. This is done by cleaving the N-C1' gylcosylic bond between the base and deoxyribose, in both single and double-stranded DNA. While initiating the first steps of DNA repair, UDG undergoes a conformational change from the "open" unbound state to the "closed" DNA-bound state, creating a catalytic center. The bound UDG effectively flips the uridine nucleotide into the catalyic center and cleaves the glycosylic bond to excise the uracil. The open-to-closed conformation change is centered on a B zipper in the UDG. UDG alters the orientation electron orbitals to favor electron transpositions, thus taking advantage of conformational strain to catapult the cleavage of the gylcosylic bond. Two isoforms of UDG, UDG1 and UDG1A, have been characterized. The UDG1 isoform localizes to the mitochondria. UDG1A is a processed isoform containing a unique 44 residue amino-terminus which localizes this isoform to the nucleus.

REFERENCES

1. Aasland, R., et al. 1990. Chromosomal assignment of human uracil-DNA glycosylase to chromosome 12. Genomics 7: 139-141.
2. Slupphaug, G., et al. 1995. Properties of a recombinant human uracil-DNA glycosylase from the UNG gene and evidence that UNG encodes the major uracil-DNA glycosylase. Biochemistry 34: 128-138.
3. Slupphaug, G., et al. 1996. A nucleotide-flipping mechanism from the structure of human uracil-DNA glycosylase bound to DNA. Nature 384: 87-92.
4. Parikh, S.S., et al. 1997. Base excision repair enzyme family portrait: integrating the structure and chemistry of an entire DNA repair pathway. Structure 5: 1543-S1550.

CHROMOSOMAL LOCATION

Genetic locus: UNG (human) mapping to 12q24.11; Ung (mouse) mapping to 5 F.

SOURCE

UDG (B-7) is a mouse monoclonal antibody raised against amino acids 67-313 mapping at the C-terminus of UDG of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

UDG (B-7) is available conjugated to agarose (sc-390255 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-390255 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390255 PE), fluorescein (sc-390255 FITC), Alexa Fluor® 488 (sc-390255 AF488), Alexa Fluor® 546 (sc-390255 AF546), Alexa Fluor® 594 (sc-390255 AF594) or Alexa Fluor® 647 (sc-390255 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390255 AF680) or Alexa Fluor® 790 (sc-390255 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

UDG (B-7) is recommended for detection of UDG isoforms 1 and 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for UDG siRNA (h): sc-37803, UDG siRNA (m): sc-37804, UDG shRNA Plasmid (h): sc-37803-SH, UDG shRNA Plasmid (m): sc-37804-SH, UDG shRNA (h) Lentiviral Particles: sc-37803-V and UDG shRNA (m) Lentiviral Particles: sc-37804-V.

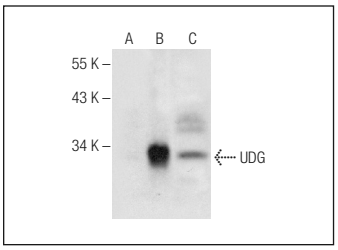
Molecular Weight of UDG: 34 kDa.

Positive Controls: UDG (h): 293 Lysate: sc-113213, IMR-32 cell lysate: sc-2409 or NTERA-2 cl.D1 whole cell lysate: sc-364181.

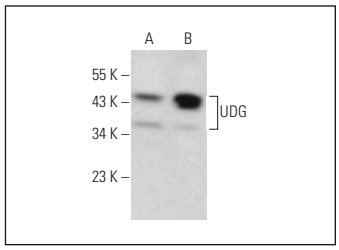
RECOMMENDED SUPPORT REAGENTS

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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



UDG (B-7): sc-390255. Western blot analysis of UDG expression in non-transfected 293: sc-110760 (**A**), human UDG transfected 293: sc-113213 (**B**) and Ca Ski (**C**) whole cell lysates.



UDG (B-7): sc-390255. Western blot analysis of UDG expression in NTERA-2 cl.D1 (**A**) and IMR-32 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Srivastava, M., et al. 2020. HMCES safeguards replication from oxidative stress and ensures error-free repair. EMBO Rep. 21: e49123.

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.