SANTA CRUZ BIOTECHNOLOGY, INC.

RuvC (5G9/3): sc-53437

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The Power to Question

BACKGROUND

In *Escherichia coli*, the RuvA, RuvB and RuvC proteins are required for the late stages of homologous recombination and DNA repair and are involved in processing the Holliday junction during homologous recombination. The RuvA protein binds both single-stranded and double-stranded DNA. RuvA and RuvB both promote branch migration idependently, while the RuvA-RuvB complex interacts with irregular conformations in damaged DNA, induces conformational changes in DNA using ATP, facilitates DNA repair and aids in recombination and error prone replication. RuvC is responsible for the resolution of Holliday junctions via endonucleolytic cleavage. RuvABC proteins are responsible for the occurrence of DSBs at arrested replication forks. In cells proficient for RecBC, RuvAB is uncoupled from RuvC and DSBs may be prevented.

REFERENCES

1. Eggleston, A.K., et al. 1997. *In vitro* reconsitiution of the late steps of genetic recombination in *E. coli*. Cell 89: 607-167.
2. Yoshikawa, M., et al. 2000. Two basic residues, Lys-107 and Lys-118, of RuvC resolvase are involved in critical contacts with the Holliday junction for its resolution. Genes Cells 5: 803-813.
3. Fogg, J.M. and Lilley, D.M. 2001. Ensuring productive resolution by the junction-resolving enzyme RuvC: large enhancement of the second-strand cleavage rate. Biochemistry 39: 16125-16134.
4. Yoshikawa, M., et al. 2001. Evidence that phenylalanine 69 in *Escherichia coli* RuvC resolvase forms a stacking interaction during binding and destabilization of a Holliday junction DNA substrate. J. Biol. Chem. 276: 10432-10436.
5. Prabhu, V.P., et al. 2002. p53 blocks RuvAB promoted branch migration and modulates resolution of Holliday junctions by RuvC. J. Mol. Biol. 316: 1023-1032.
6. Sha, R., et al. 2002. Parallel symmetric immobile DNA junctions as substrates for *E. coli* RuvC Holliday junction resolvase. Biochemistry 41: 10985-10993.

SOURCE

RuvC (5G9/3) is a mouse monoclonal antibody raised against RuvC protein from *E. coli*.

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.

RuvC (5G9/3) is available conjugated to agarose (sc-53437 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-53437 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53437 PE), fluorescein (sc-53437 FITC), Alexa Fluor® 488 (sc-53437 AF488), Alexa Fluor® 546 (sc-53437 AF546), Alexa Fluor® 594 (sc-53437 AF594) or Alexa Fluor® 647 (sc-53437 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-53437 AF680) or Alexa Fluor® 790 (sc-53437 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

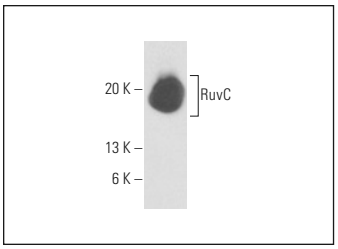
RuvC (5G9/3) is recommended for detection of RuvC of *E. coli* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Molecular Weight of RuvC: 19 kDa.

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).

DATA



RuvC (5G9/3): sc-53437. Western blot analysis of purified *E. coli* RuvC.

SELECT PRODUCT CITATIONS

1. Xia, J., et al. 2019. Bacteria-to-human protein networks reveal origins of endogenous DNA damage. Cell 176: 127-143.e24.
2. Mei, Q., et al. 2021. Two mechanisms of chromosome fragility at replication-termination sites in bacteria. Sci. Adv. 7: eabe2846.
3. Chen, P.J., et al. 2023. Interdependent progression of bidirectional sister replisomes in *E. coli*. Elife 12: e82241.

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 for detailed protocols and support products.