SANTA CRUZ BIOTECHNOLOGY, INC.

# G9a (C-9): sc-515726

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

Distinct modifications of histone tails, such as acetylation, phosphorlation and methylation, regulate nuclear processes, such as control of transcription and mitotic chromosome condensation. Histone methyltransferases (HMTases) are among the different groups of enzymes known to catalyze the covalent modification. G9a, a SET domain-containing protein, is a novel mammalian lysine-preferring HMTase. G9a, also known as BAT8, NG36 or HMTase (for mammalian histone methyltransferase), has strong HMTase activity towards Histone H3 lysine 9 methylation *in vitro*. G9a plays a dominant role in euchromatic Histone H3 lysine 9 methylation, is essential for early embryogenesis and is involved in the transcriptional repression of developmental genes. Like SUV39H, G9a transfers methyl groups to the lysine residues of Histone H3, but with a 10-20-fold higher activity than SUV39H1. G9a also adds methyl groups to lysine 27 as well as lysine 9 in Histone H3. G9a localizes in the nucleus, indicating that it may contribute to the organization of the higher order chromatin structure of non-centromeric loci. The human G9a gene maps to chromosome 6p21.33.

## REFERENCES


1. Spies, T., et al. 1989. Human major histocompatibility complex contains a minimum of 19 genes between the complement cluster and HLA-B. Proc. Natl. Acad. Sci. USA 86: 8955-8958.
2. Milner, C.M. and Campbell, R.D. 1993. The G9a gene in the human major histocompatibility complex encodes a novel protein containing ankyrin-like repeats. Biochem. J. 290: 811-818.
3. Tachibana, M., et al. 2001. Set domain-containing protein, G9a, is a novel lysine-preferring mammalian histone methyltransferase with hyperactivity and specific selectivity to lysines 9 and 27 of Histone H3. J. Biol. Chem. 276: 25309-25317.


## CHROMOSOMAL LOCATION

Genetic locus: EHMT2 (human) mapping to 6p21.33; Ehmt2 (mouse) mapping to 17 B1.

## SOURCE

G9a (C-9) is a mouse monoclonal antibody raised against amino acids 346-564 mapping within an internal region of G9a of human origin.

## PRODUCT

Each vial contains 200 µg $IgG_1$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

G9a (C-9) is available conjugated to agarose (sc-515726 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-515726 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515726 PE), fluorescein (sc-515726 FITC), Alexa Fluor® 488 (sc-515726 AF488), Alexa Fluor® 546 (sc-515726 AF546), Alexa Fluor® 594 (sc-515726 AF594) or Alexa Fluor® 647 (sc-515726 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515726 AF680) or Alexa Fluor® 790 (sc-515726 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.



## APPLICATIONS

G9a (C-9) is recommended for detection of G9a 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).

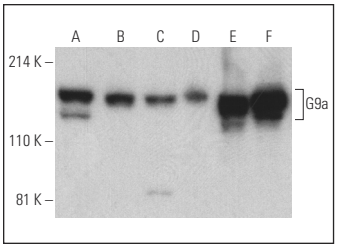
Suitable for use as control antibody for G9a siRNA (h): sc-43777, G9a siRNA (m): sc-145298, G9a shRNA Plasmid (h): sc-43777-SH, G9a shRNA Plasmid (m): sc-145298-SH, G9a shRNA (h) Lentiviral Particles: sc-43777-V and G9a shRNA (m) Lentiviral Particles: sc-145298-V.

Molecular Weight (predicted) of G9a: 132/129/20 kDa.

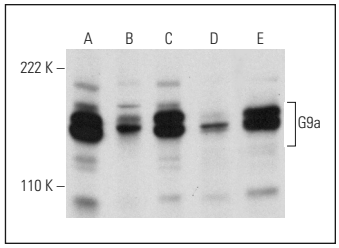
Molecular Weight (observed) of G9a: 160 kDa.

Positive Controls: HEK293 whole cell lysate: sc-45136, Hep G2 nuclear extract: sc-364819 or HeLa nuclear extract: sc-2120.

## DATA




G9a (C-9): sc-515726. Western blot analysis of G9a expression in HEK293 whole cell lysate (**A**) and HeLa (**B**), K-562 (**C**), HL-60 (**D**), LADMAC (**E**) and KNRK (**F**) nuclear extracts. Detection reagent used: m-IgGκ BP-HRP: sc-516102.




G9a (C-9): sc-515726. Western blot analysis of G9a expression in HEK293 (**A**) and A-431 (**B**) whole cell lysates and HeLa (**C**), Hep G2 (**D**) and K-562 (**E**) nuclear extracts.

## SELECT PRODUCT CITATIONS


1. Hervás-Corpión, I., et al. 2018. Early alteration of epigenetic-related transcription in Huntington's disease mouse models. Sci. Rep. 8: 9925.
2. Roy, A., et al. 2019. IFI16, a nuclear innate immune DNA sensor, mediates epigenetic silencing of herpesvirus genomes by its association with H3K9 methyltransferases SUV39H1 and GLP. Elife 8: e49500.
3. González, B., et al. 2020. Dopamine receptor D1 contributes to cocaine epigenetic reprogramming of histone modifications in male germ cells. Front. Cell Dev. Biol. 8: 216.
4. Wang, Z., et al. 2020. SETD5-coordinated chromatin reprogramming regulates adaptive resistance to targeted pancreatic cancer therapy. Cancer Cell 37: 834-849.e13.


## 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.