

Product Information

Anti-G9a Methyltransferase

Developed in Rabbit
Affinity Isolated Antibody

Product Number **G 6919**

Product Description

Anti-G9a Methyltransferase is developed in rabbit using as immunogen a synthetic peptide corresponding to amino acids 1193-1210 of human G9a, conjugated to KLH via an N-terminal added lysine residue. This sequence differs from the mouse in 3 amino acids. The antibody is affinity purified on the immunizing peptide immobilized on agarose.

Anti-G9a Methyltransferase recognizes the two isoforms of G9a Methyltransferase (approx. 180 kDa and 160 kDa). Applications include immunoblotting and immunoprecipitation. Staining of the G9a methyltransferase bands in immunoblotting is specifically inhibited by the G9a immunizing peptide.

Postranslational modifications of histones such as phosphorylation, acetylation and methylation are crucial for chromatin remodeling.¹ Lysines 4, 9, and 27 in histones H3 and H4 were shown to be methylated.² Several histone methyltransferases (HMTases) have been identified.^{3,4} Among these enzymes, Suv39h1 and h2 and its homologue H2, were the first identified mammalian lysine-preferring HMTases and SET-domain containing proteins. Another member of the family called G9a (also known as BAT8, G9a/NG36, or NG36) has been identified. G9a was originally characterized as a molecule encoded by a gene mapped in the class III region of the Human Major Histocompatibility Complex locus.⁵ The NG36 and G9a genes in this locus were originally thought to be derived from two separate genes. However, it was shown later that they are expressed within a single transcript.⁶ In mouse and human, two isoforms have been identified containing 1263, 1172 amino acids and 1210, 1176 amino acids, respectively.⁷ Compared to Suv39H1, G9a has a 10 to 20-fold stronger *in vitro* HMTase activity towards histone H3-Lys⁹ (H3-K9). In addition, G9a methylates Lys²⁷ of histone H3 (H3-K27).⁴ Another difference between these proteins resides in the degree of methylation, and in localization within chromatin domains: G9a was found to be the enzyme responsible for mono and dimethylation within silent euchromatin,

whereas Suv39h1 and h2 direct trimethylation at pericentric heterochromatin.⁷ *In vivo*, G9a is essential for early embryonic development and plays a dominant role in H3-K9 methylation of euchromatin.⁸ G9a was found to be a critical component of the CtBP and E2F-6 transcriptional repressor complexes.^{9,10} The current hypothesis suggests that DNA-binding repressors anchor the CtBP complex to its target promoters; this is followed by the removal of an acetyl group from the histone tails of transcriptionally active chromatin; this in turn allows G9a and EuHMT1 to methylate Lys⁹ of Histone H3.⁹ G9a, as well as EuHMT1 (Eu-HMTase), were found to be also components of the multimeric protein complex E2F-6, which led to hypothesize that they could also contribute to silencing of E2F-6, as well as Myc- responsive genes.¹⁰

Antibodies specific to G9a methyltransferase are an important tool for studying chromatin remodeling effects on gene expression.

Reagent

Anti-G9a Methyltransferase is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: Approx. 1.0 mg/ml

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in frost-free freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

By immunoblotting, a working antibody concentration of 1-2 µg/ml is recommended using nuclear extracts of 293-T cells.

By immunoprecipitation, 1.0-2.0 µg of the antibody will immunoprecipitate G9a from 293-T cell extracts.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working concentrations by titration.

References

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