Anti-DNMT1

Catalog# SMC-200D

Size: 100µg

This product is for *in vitro* research use only and is not intended for use in humans or animals

Product	**Mouse DNMT1 (DNA methyltransferase 1) monoclonal Antibody**
Clone	**60B1220.1**
Immunogen	**Raised against a synthetic peptide corresponding to amino acids 637-650 of human DNMT1 (Gene accession number NP_001370)**
Host and Subclass	**Mouse IgG_1 , Kappa**
Cited Applications	**WB, IHC, IP, ChIP**
Specificity	**It will cross react with mouse DNMT1.**
Species Cross-reactivity	**Human, Mouse, Zebrafish**
Format	**Protein G purified, formatted in PBS containing 0.05% BSA and 0.05% sodium azide**
Concentration and working dilution	**0.5mg/mL; 2-4ug/mL for Western blot, 1-2ug/mL for IHC**
Storage and stability	**-20˚C; 1 year+; shipped on cold packs or ambient**

Scientific Background

Methylation of DNA at cytosine residues plays an important role in regulation of gene expression, genomic imprinting and is essential for mammalian development. Hypermethylation of CpG islands in tumor suppressor genes or hypomethylation of bulk genomic DNA may be linked with development of cancer. To date, 3 families of mammalian DNA methyltransferase genes have been identified which include Dnmt1, Dnmt2 and Dnmt3. Dnmt1 is constitutively expressed in proliferating cells and inactivation of this gene causes global demethylation of genomic DNA and embryonic lethality. Dnmt2 is expressed at low levels in adult tissues and its inactivation does not affect DNA methylation or maintenance of methylation. The Dnmt3 family members, Dnmt3a and Dnmt3b, are strongly expressed in ES cells but their expression is down regulated in differentiating ES cells and is low in adult somatic tissue. Dnmt1 co-purifies with the retinoblastoma (Rb) tumour suppressor gene product, E2F1, and HDAC1. Dnmt1 also cooperates with Rb to repress transcription from promoters containing E2F-binding sites suggesting a link between DNA methylation, histone deacetylase and sequence-specific DNA binding activity, as well as a growth-regulatory pathway that is disrupted in nearly all cancer cells (1-6).

Selected References

1. Bestor T., *et al.*(1988) *J.Mol. Biol*. 203: 971-983.
2. Yen R.W., Vertino P.M., Nelkin B.D. *et al.* (1992) *Nucl. Acids Res.* 20: 2287-2291.
3. Xie S. *et al*. (1999) *Gene* 236: 87-95.
4. Okano M., Bell D.W., Haber D.A. and Li E. (1999) *Cell* 99: 247-257.
5. Reik W. *et al.* (1999) *J. Nat. Genet* 23: 380-382.
6. Robertson K.D., *et al.* (2000) *Nat Genet* 25(3):338-342.

Certificate of Analysis

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2 µg/mL of SMC-200 was sufficient for detection of Dnmt1 in 10µg of mouse ES cell lysate by colorimetric immunoblot analysis using Goat anti-mouse IgG:HRP as the secondary antibody.

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Material Safety Data Sheet

Anti-DNMT1 (Monoclonal) SMC-200

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The below information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. StressMarq shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalogue for additional terms and conditions of sale.

Hazardous Ingredients

The physical, chemical and toxicological properties of these components have not been fully investigated. It is recommended that all laboratory personnel follow standard laboratory safety procedures when handling this product. Safety procedures should include wearing OSHA approved safety glasses, gloves and protective clothing. Direct physical contact with this product should be avoided.

Known Hazardous Components	CAS Number	Percent
Sodium Azide	26628-22-8	0.05

Physical Data

This product consists of rabbit immunoglobulin in PBS buffer containing 0.05% BSA and 0.05% sodium azide shipped on gel packs. The physical properties of this product have not been investigated thoroughly.

Fire and Explosion Hazard and Reactivity Data

NOT APPLICABLE

Toxicological Properties

May be harmful by inhalation, ingestion, or skin absorption. The toxicological properties of this product have not been investigated thoroughly. Exercise due caution.

Preventative Measures

Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.

Spill and Leak Procedures

Observe all federal, state and local environmental regulations.

- Wear protective equipment.
- Absorb on sand or vermiculite and place in closed containers for disposal.
- Dispose or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

First Aid Measures

- If swallowed, wash out mouth with water, provided person is conscious. Call a physician.
- In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. If a rash or other irritation develops, call a physician.
- If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.
- In case of eye contact, flush with copious amounts of water for at least 15 minutes while separating the eyelids with fingers. Call a physician.