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DC12 Antibody (C-term) Blocking peptide
Synthetic peptide
Catalog # BP10997b

Specification

DC12 Antibody (C-term) Blocking peptide - Product Information

Primary Accession	Q96FZ2
Other Accession	NP_001006109.1, NP_064572.2

DC12 Antibody (C-term) Blocking peptide - Additional Information

Gene ID 56941

Other Names
Embryonic stem cell-specific 5-hydroxymethylcytosine-binding protein, ES cell-specific 5hmC-binding protein, Putative peptidase SRAPD1, 34--, SRAP domain-containing protein 1, HMCES, C3orf37, DC12, SRAPD1

Format
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

DC12 Antibody (C-term) Blocking peptide - Protein Information

Name HMCES {ECO:0000303|PubMed:30554877, ECO:0000312|HGNC:HGNC:24446}

Function
Sensor of abasic sites in single-stranded DNA (ssDNA) required to preserve genome integrity by promoting error-free repair of abasic sites (PubMed:30554877, PubMed:31235913, PubMed:31235915, PubMed:32307824, PubMed:32492421). Acts as an enzyme that recognizes and binds abasic sites in ssDNA at replication forks and chemically modifies the lesion by forming a covalent cross-link with DNA: forms a stable thiazolidine linkage between a ring-opened abasic site and the alpha-amino and sulfhydryl substituents of its N-terminal catalytic cysteine residue (PubMed:30554877, PubMed:31235913). Promotes error- free repair by protecting abasic sites from translesion synthesis (TLS) polymerases and endonucleases that are error-prone and would generate mutations and double-strand breaks

(PubMed:30554877). The HMCES DNA- protein cross-link is then either reversed or degraded (PubMed:30554877, PubMed:36608669, PubMed:37519246, PubMed:37950866). HMCES is able to catalyze the reversal of its thiazolidine cross-link and cycle between a cross-link and a non-cross-linked state depending on DNA context: mediates self-reversal of the thiazolidine cross-link in double stranded DNA, allowing APEX1 to initiate downstream repair of abasic sites (PubMed:37519246, PubMed:37950866). The HMCES DNA-protein cross-link can also be degraded by the SPRTN metalloprotease following unfolding by the BRIP1/FANCJ helicase (PubMed:36608669). Has preference for ssDNA, but can also accommodate double-stranded DNA with 3' or 5' overhang (dsDNA), and dsDNA-ssDNA 3' junction (PubMed:31235915, PubMed:31806351). Plays a protective role during somatic hypermutation of immunoglobulin genes in B-cells: acts via its ability to form covalent cross-links with abasic sites, thereby limiting the accumulation of deletions in somatic hypermutation target regions (PubMed:35450882). Also involved in class switch recombination (CSR) in B-cells independently of the formation of a DNA-protein cross-link: acts by binding and protecting ssDNA overhangs to promote DNA double- strand break repair through the microhomology-mediated alternative-end- joining (Alt-EJ) pathway (By similarity). Acts as a protease: mediates autocatalytic processing of its N-terminal methionine in order to expose the catalytic cysteine (By similarity).

Cellular Location
Chromosome. Note=Recruited to chromatin following DNA damage (PubMed:30554877) Localizes to replication forks (PubMed:30554877)

DC12 Antibody (C-term) Blocking peptide - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Blocking Peptides

DC12 Antibody (C-term) Blocking peptide - Images

DC12 Antibody (C-term) Blocking peptide - References

Gerhard, D.S., et al. Genome Res. 14 (10B), 2121-2127 (2004) :