

# DC12 Antibody (C-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP10997b

## Product Information

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Application	WB, E
Primary Accession	<a href="#">Q96FZ2</a>
Other Accession	<a href="#">NP_064572.2</a> , <a href="#">NP_001006109.1</a>
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB25369
Calculated MW	40575
Antigen Region	281-310

## Additional Information

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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
Target/Specificity	This DC12 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 281-310 amino acids from the C-terminal region of human DC12.
Dilution	WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	DC12 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

## Protein Information

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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/FANCD1 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).

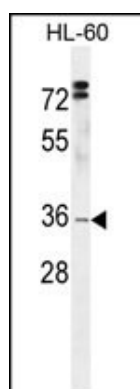
## Cellular Location

Chromosome. Note=Recruited to chromatin following DNA damage (PubMed:[30554877](#)) Localizes to replication forks (PubMed:[30554877](#))

## References

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

## Images



DC12 Antibody (C-term) (Cat. #AP10997b) western blot analysis in HL-60 cell line lysates (35ug/lane). This demonstrates the DC12 antibody detected the DC12 protein (arrow).