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# DC12 Antibody (C-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP10997b

## Product Information

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|---|---|
| **Application** | WB, E |
| **Primary Accession** | Q96FZ2 |
| **Other Accession** | NP_064572.2, NP_001006109.1 |
| **Reactivity** | Human |
| **Predicted** | Canine |
| **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/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).

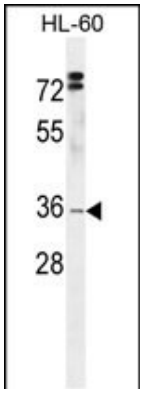
**Cellular Location**

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

## 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).

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.