10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

DTL Antibody (Center)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP10973c

Product Information

Application	WB, FC, E
Primary Accession	Q9NZJ0
Other Accession	Q3TLR7, NP_057532.2
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB24420
Calculated MW	79468
Antigen Region	229-256

Additional Information

Gene ID	51514
Other Names	Denticleless protein homolog, DDB1- and CUL4-associated factor 2, Lethal(2) denticleless protein homolog, Retinoic acid-regulated nuclear matrix-associated protein, DTL, CDT2, CDW1, DCAF2, L2DTL, RAMP
Target/Specificity	This DTL antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 229-256 amino acids from the Central region of human DTL.
Dilution	WB~~1:1000 FC~~1:10~50 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	DTL Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	DTL
Synonyms	CDT2, CDW1, DCAF2, L2DTL, RAMP

Function	Substrate-specific adapter of a DCX (DDB1-CUL4-X-box) E3 ubiquitin-protein ligase complex required for cell cycle control, DNA damage response and translesion DNA synthesis. The DCX(DTL) complex, also named CRL4(CDT2) complex, mediates the polyubiquitination and subsequent degradation of CDT1, CDKN1A/p21(CIP1), FBH1, KMT5A and SDE2 (PubMed:16861906, PubMed:16949367, PubMed:16964240, PubMed:17085480, PubMed:18703516, PubMed:18794347, PubMed:18794348, PubMed:19332548, PubMed:20129063, PubMed:23478441, PubMed:23478445, PubMed:23677613, PubMed:27906959). CDT1 degradation in response to DNA damage is necessary to ensure proper cell cycle regulation of DNA replication (PubMed:16861906, PubMed:16949367, PubMed:17085480). CDKN1A/p21(CIP1) degradation during S phase or following UV irradiation is essential to control replication licensing (PubMed:18794348, PubMed:19332548). KMT5A degradation is also important for a proper regulation of mechanisms such as TGF-beta signaling, cell cycle progression, DNA repair and cell migration (PubMed:23478445). Most substrates require their interaction with PCNA for their polyubiquitination: substrates interact with PCNA via their PIP-box, and those containing the 'K+4' motif in the PIP box, recruit the DCX(DTL) complex, leading to their degradation. In undamaged proliferating cells, the DCX(DTL) complex also promotes the 'Lys-164' monoubiquitination of PCNA, thereby being involved in PCNA- dependent translesion DNA synthesis (PubMed:20129063, PubMed:23478441, PubMed:23478445, PubMed:23677613). The DDB1-CUL4A-DTL E3 ligase complex regulates the circadian clock function by mediating the ubiquitination and degradation of CRY1 (PubMed:26431207).
Cellular Location	Nucleus. Nucleus membrane; Peripheral membrane protein; Nucleoplasmic side. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Chromosome Note=Nuclear matrix-associated protein. Translocates from the interphase nucleus to the metaphase cytoplasm during mitosis
Tissue Location	Expressed in placenta and testis, very low expression seen in skeletal muscle. Detected in all hematopoietic tissues examined, with highest expression in thymus and bone marrow. A low level detected in the spleen and lymph node, and barely detectable level in the peripheral leukocytes. RA treatment down-regulated the expression in NT2 cell.

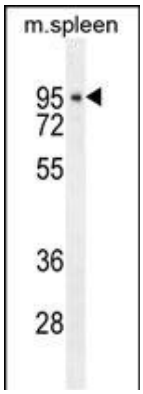
Background

Substrate-specific adapter of a DCX (DDB1-CUL4-X-box) E3 ubiquitin-protein ligase complex required for cell cycle control, DNA damage response and translesion DNA synthesis. The DCX(DTL) complex, also named CRL4(CDT2) complex, mediates the polyubiquitination and subsequent degradation of CDT1 and CDKN1A/p21(CIP1). CDT1 degradation in response to DNA damage is necessary to ensure proper cell cycle regulation of DNA replication. CDKN1A/p21(CIP1) degradation during S phase or following UV irradiation is essential to control replication licensing. Most substrates require their interaction with PCNA for their polyubiquitination: substrates interact with PCNA via their PIP-box, and those containing the 'K+4' motif in the PIP box, recruit the DCX(DTL) complex, leading to their degradation. In undamaged proliferating cells, the DCX(DTL) complex also promotes the 'Lys-164' monoubiquitination of PCNA, thereby being involved in PCNA-dependent translesion DNA synthesis.

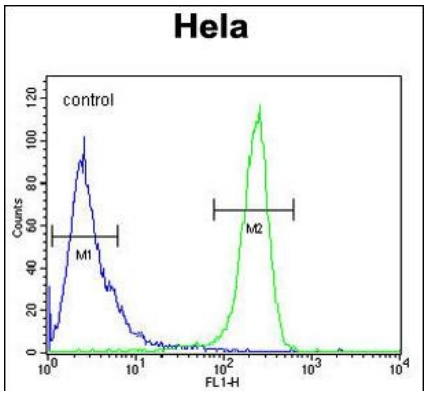
References

Centore, R.C., et al. Mol. Cell 40(1):22-33(2010)
Abbas, T., et al. Mol. Cell 40(1):9-21(2010)
Song, B., et al. Mol. Cancer 9, 96 (2010) :
Li, J., et al. Br. J. Cancer 101(4):691-698(2009)
Abbas, T., et al. Genes Dev. 22(18):2496-2506(2008)

Images



DTL Antibody (Center) (Cat. #AP10973c) western blot analysis in mouse spleen tissue lysates (35ug/lane).This demonstrates the DTL antibody detected the DTL protein (arrow).



DTL Antibody (Center) (Cat. #AP10973c) flow cytometric analysis of Hela cells (right histogram) compared to a negative control cell (left histogram).FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.