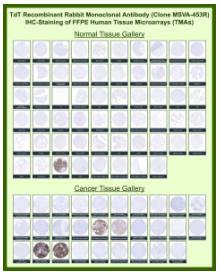
DNTT Antibody for IHC / TdT / Terminal deoxynucleotidyl transferase [clone MSVA-453R] (V6067)

Catalog No.	Formulation	Size
V6067-100UG	Antibody in 1X PBS with 0.05% BSA, 0.05% sodium azide	100 ug
V6067-20UG	Antibody in 1X PBS with 0.05% BSA, 0.05% sodium azide	20 ug

Recombinant RABBIT MONOCLONAL

Bulk quote request

Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG, kappa
Clone Name	MSVA-453R
UniProt	P04053
Localization	Nucleus
Applications	Immunohistochemistry (FFPE) : 1:75-1:150
Limitations	This DNTT/Terminal deoxynucleotidyl transferase antibody is available for research use only.



Immunohistochemistry of DNTT Antibody for IHC in normal and cancer tissue microarrays. Formalin-fixed, paraffin-embedded human tissue microarrays were stained with the rabbit recombinant monoclonal antibody clone MSVA-453R. Strong nuclear staining is observed in immature thymocytes, while most non-lymphoid normal tissues and non-lymphoid carcinomas show minimal to no staining. The restricted nuclear expression pattern is consistent with the established role of Terminal deoxynucleotidyl transferase as a marker of immature lymphoid cells and lymphoblastic neoplasms, including Acute Lymphoblastic Leukemia.

Description

DNTT antibody for IHC, also known as TdT antibody, recognizes Terminal deoxynucleotidyl transferase, a specialized nuclear DNA polymerase encoded by the DNTT gene on chromosome 10q23-q24. Terminal deoxynucleotidyl transferase, commonly referred to as TdT and also known as DNA nucleotidylexotransferase or Terminal transferase, is a member of the DNA polymerase X family selectively expressed in immature lymphoid cells. DNTT antibody, also referred to as TdT antibody in the literature, is widely used in research focused on lymphoid differentiation and hematologic malignancies. This recombinant monoclonal antibody clone MSVA-453R is designed to support immunohistochemical detection of

nuclear TdT expression in tissue sections.

Terminal deoxynucleotidyl transferase catalyzes the template-independent addition of deoxynucleotides to the 3-prime hydroxyl ends of DNA during V(D)J recombination. This distinctive enzymatic activity introduces N-region nucleotide diversity within immunoglobulin and T cell receptor gene segments, significantly expanding antigen receptor repertoire complexity. TdT operates within nuclear recombination centers in coordination with RAG1 and RAG2 complexes and other components of the non-homologous end joining pathway. Its catalytic core contains conserved polymerase domains characteristic of the Pol X family, enabling nucleotide incorporation without requiring a DNA template.

DNTT expression is tightly regulated and largely restricted to early B and T lymphoblasts in bone marrow and thymus. In the thymic cortex, TdT-positive cells represent developing T cell precursors undergoing receptor rearrangement. Expression decreases as lymphocytes mature, making TdT a well-established marker of lymphoid immaturity. Elevated nuclear TdT expression is frequently observed in acute lymphoblastic leukemia and lymphoblastic lymphoma, where DNTT antibody detection supports research into leukemic blast populations and lymphoid neoplasia biology.

Structurally, TdT contains regulatory regions that influence substrate selection and protein-protein interactions within recombination complexes. Alternative splicing of DNTT can generate isoforms with subtle biochemical differences that may affect catalytic efficiency and regulation. Persistent or dysregulated expression of DNTT contributes to genomic variability and is implicated in lymphoid malignancy development. Through its central role in immune receptor diversification, Terminal deoxynucleotidyl transferase remains essential to both normal lymphopoiesis and disease-oriented research applications.

Application Notes

1. Optimal dilution of the DNTT antibody for IHC should be determined by the researcher.

2. This DNTT/Terminal deoxynucleotidyl transferase antibody is recombinantly produced by expression in human HEK293 cells.

3. Manual Protocol: Freshly cut sections should be used (less than 10 days between cutting and staining). Heat-induced antigen retrieval for 5 minutes in an autoclave at 121oC in pH 7.8 Target Retrieval Solution buffer. Apply the antibody at a dilution of 1:150 at 37oC for 60 minutes. Visualization of bound antibody by the EnVision Kit (Dako, Agilent) according to the manufacturer's directions.

Immunogen

A recombinant fragment (around amino acids 52-192) of human DNTT protein (exact sequence is proprietary) was used as the immunogen for the DNTT antibody for IHC.

Storage

DNTT/Terminal deoxynucleotidyl transferase antibody with sodium azide - store at 2 to 8oC; antibody without sodium azide - store at -20 to -80oC.