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Topoisomerase (DNA) I, Mitochondrial (TOP1MT) Antibody - With BSA and Azide

Mouse Monoclonal Antibody [Clone TOP1MT/488]
Catalog # AH11100

Product Information

Application	IHC, IF, FC
Primary Accession	Q969P6
Other Accession	116447, 528574
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	Mouse / IgG2b, kappa
Clone Names	TOP1MT/488
Calculated MW	69872

Additional Information

Gene ID	116447
Other Names	DNA topoisomerase I, mitochondrial, TOP1mt, 5.99.1.2, TOP1MT
Application Note	IHC~~1:100~500 IF~~1:50~200 FC~~1:10~50
Storage	Store at 2 to 8°C.Antibody is stable for 24 months.
Precautions	Topoisomerase (DNA) I, Mitochondrial (TOP1MT) Antibody - With BSA and Azide is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	TOP1MT
Function	Releases the supercoiling and torsional tension of DNA introduced during duplication of mitochondrial DNA by transiently cleaving and rejoining one strand of the DNA duplex. Introduces a single-strand break via transesterification at a target site in duplex DNA. The scissile phosphodiester is attacked by the catalytic tyrosine of the enzyme, resulting in the formation of a DNA-(3'-phosphotyrosyl)- enzyme intermediate and the expulsion of a 5'-OH DNA strand. The free DNA strand then rotates around the intact phosphodiester bond on the opposing strand, thus removing DNA supercoils. Finally, in the religation step, the DNA 5'-OH attacks the covalent intermediate to expel the active-site tyrosine and restore the DNA phosphodiester backbone (By similarity).

Cellular Location	Mitochondrion.
Tissue Location	Ubiquitous; highest in skeletal muscle, heart, brain and fetal liver.

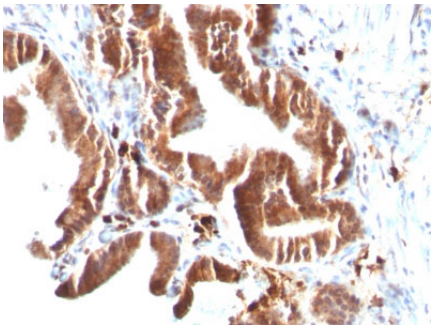
Background

DNA topoisomerases are nuclear enzymes that regulate the topological structure of DNA in eukaryotic cells by transiently breaking and rejoining DNA strands. Due to their roles in DNA replication, recombination, and transcription, DNA topoisomerases have been identified as targets of numerous anticancer drugs. Mitochondrial Topo I (DNA topoisomerase I, mitochondrial) is a 601 amino acid protein that primarily acts to relieve DNA strain that may occur during duplication of mitochondrial DNA. As a type IB topoisomerase, mitochondrial Topo I requires a divalent metal, either, calcium or magnesium, as well as an alkaline pH for optimal activity.

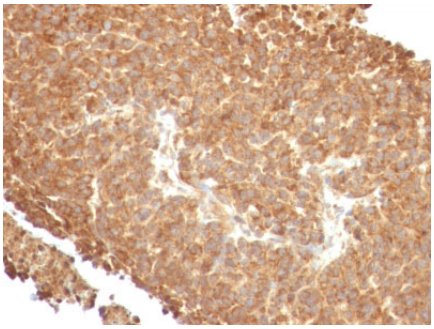
References

Zhang, H., Barcel □, J.M., Lee, B., Kohlhagen, G., Zimonjic, D.B., Popescu, N.C. and Pommier, Y. 2001. Human mitochondrial topoisomerase I. Proc. Natl. Acad. Sci. USA 98: 10608-10613. | Zhang, H., Meng, L.H. and Pommier, Y. 2007. Mitochondrial topoisomerases and alternative splicing of the human TOP1mt gene. Biochimie 89: 474-481

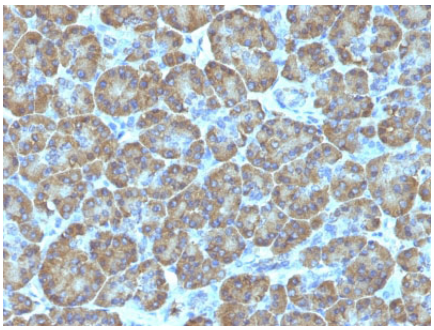
Images



Formalin-fixed, paraffin-embedded human Gallbladder stained with Topo I, MT Monoclonal Antibody (TOP1MT/488).



Formalin-fixed, paraffin-embedded human Melanoma stained with Topo I, MT Monoclonal Antibody (TOP1MT/488).



Formalin-fixed, paraffin-embedded human Pancreas stained with Topo I, MT Monoclonal Antibody (TOP1MT/488).