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KD-Validated Anti-Three Prime Repair Exonuclease 1 Rabbit Monoclonal Antibody

Rabbit monoclonal antibody
Catalog # AGI1746

Specification

KD-Validated Anti-Three Prime Repair Exonuclease 1 Rabbit Monoclonal Antibody - Product Information

Application	**WB, FC, ICC**
Primary Accession	Q9NSU2
Reactivity	**Human**
Clonality	**Monoclonal**
Isotype	**Rabbit IgG**
Calculated MW	**Predicted, 33 kDa , observed , 33 kDa KDa**
Gene Name	**TREX1**
Aliases	**TREX1; Three Prime Repair Exonuclease 1; DRN3; Three-Prime Repair Exonuclease 1; 3'-5' Exonuclease TREX1; Deoxyribonuclease III; DNase III; AGS1; Aicardi-Goutieres Syndrome 1; 3' Repair Exonuclease 1; EC 3.1.11.2; HERNS; RVCLS; CRV**
Immunogen	**A synthesized peptide derived from human TREX1**

KD-Validated Anti-Three Prime Repair Exonuclease 1 Rabbit Monoclonal Antibody - Additional Information

Gene ID	**11277**

Other Names
Three-prime repair exonuclease 1, 3.1.11.2, 3'-5' exonuclease TREX1, Deoxyribonuclease III, DNase III, TREX1 {ECO:0000303|PubMed:10391904, ECO:0000312|HGNC:HGNC:12269}

KD-Validated Anti-Three Prime Repair Exonuclease 1 Rabbit Monoclonal Antibody - Protein Information

Name TREX1 {ECO:0000303|PubMed:10391904, ECO:0000312|HGNC:HGNC:12269}

Function
Major cellular 3'-to-5' DNA exonuclease which digests single- stranded DNA (ssDNA) and double-stranded DNA (dsDNA) with mismatched 3' termini (PubMed:10391904, PubMed:10393201, PubMed:17293595). Prevents cell-intrinsic initiation of autoimmunity (PubMed:10391904, PubMed:10393201, PubMed:17293595). Acts by metabolizing DNA fragments from endogenous retroelements, including L1, LTR and SINE

elements (PubMed:10391904, PubMed:10393201, PubMed:17293595). Plays a key role in degradation of DNA fragments at cytosolic micronuclei arising from genome instability: its association with the endoplasmic reticulum membrane directs TREX1 to ruptured micronuclei, leading to micronuclear DNA degradation (PubMed:33476576). Micronuclear DNA degradation is required to limit CGAS activation and subsequent inflammation (PubMed:33476576). Unless degraded, these DNA fragments accumulate in the cytosol and activate the cGAS-STING innate immune signaling, leading to the production of type I interferon (PubMed:33476576). Prevents chronic ATM-dependent checkpoint activation, by processing ssDNA polynucleotide species arising from the processing of aberrant DNA replication intermediates (PubMed:18045533). Inefficiently degrades oxidized DNA, such as that generated upon antimicrobial reactive oxygen production or upon absorption of UV light (PubMed:23993650). During GZMA-mediated cell death, contributes to DNA damage in concert with NME1 (PubMed:16818237). NME1 nicks one strand of DNA and TREX1 removes bases from the free 3' end to enhance DNA damage and prevent DNA end reannealing and rapid repair (PubMed:16818237).

Cellular Location
Nucleus. Cytoplasm, cytosol. Endoplasmic reticulum membrane; Peripheral membrane protein. Note=Retained in the cytoplasm through the C-terminal region (By similarity). Localization to the endoplasmic reticulum membrane is required to direct TREX1 to ruptured micronuclei (PubMed:33476576). In response to DNA damage, translocates to the nucleus where it is specifically recruited to replication foci (PubMed:16818237). Translocation to the nucleus also occurs during GZMA-mediated cell death (PubMed:16818237) {ECO:0000250|UniProtKB:Q91XB0, ECO:0000269|PubMed:16818237, ECO:0000269|PubMed:33476576}

Tissue Location
Detected in thymus, spleen, liver, brain, heart, small intestine and colon.

KD-Validated Anti-Three Prime Repair Exonuclease 1 Rabbit Monoclonal Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

KD-Validated Anti-Three Prime Repair Exonuclease 1 Rabbit Monoclonal Antibody - Images

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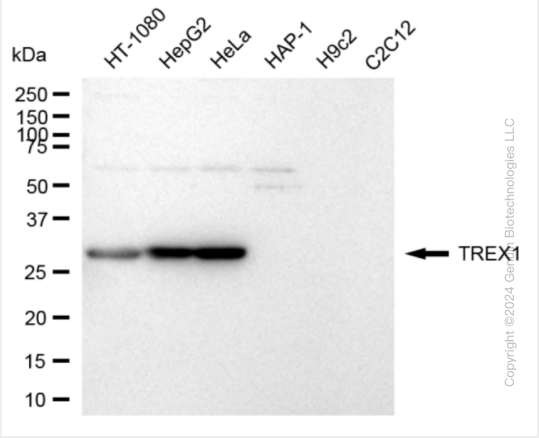
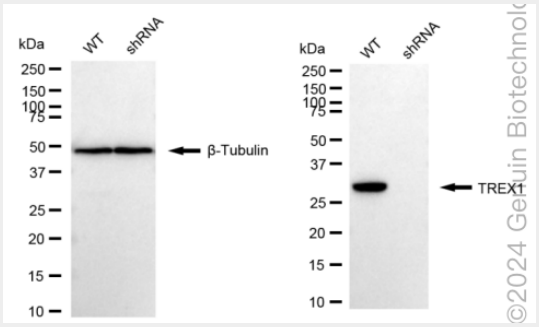
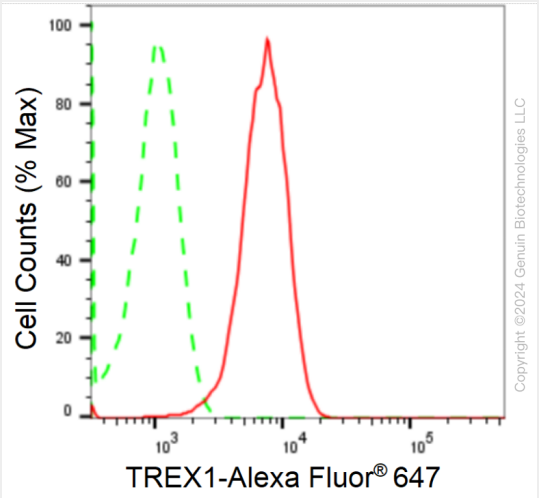


Western blotting analysis using anti-TREX1 antibody (Cat#AGI1746). Total cell lysates (30 µg) from various cell lines were loaded and separated by SDS-PAGE. The blot was incubated with anti-TREX1 antibody (Cat#AGI1746, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.



Western blotting analysis using anti-TREX1 antibody (Cat#AGI1746). TREX1 expression in wild type (WT) and TREX1 shRNA knockdown (KD) HeLa cells with 20 µg of total cell lysates. β-Tubulin serves as a loading control. The blot was incubated with anti-TREX1 antibody (Cat#AGI1746, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.



Flow cytometric analysis of TREX1 expression in HepG2 cells using anti-TREX1 antibody (Cat#AGI1746, 1:2,000). Green, isotype control; red, TREX1.

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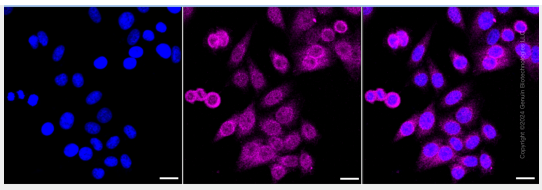

Immunocytochemical staining of HepG2 cells with anti-TREX1 antibody (Cat#AGI1746, 1:1,000). Nuclei were stained blue with DAPI; TREX1 was stained magenta with Alexa Fluor® 647. Images were taken using Leica stellaris 5. Protein abundance based on laser Intensity and smart gain: Medium. Scale bar: 20 µm.