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Anti-Human MDC1 (RABBIT) Antibody

MDC1 Antibody
Catalog # ASR5234

Specification

Anti-Human MDC1 (RABBIT) Antibody - Product Information

Host	**Rabbit**
Conjugate	**Unconjugated**
Target Species	**Human**
Reactivity	**Human**
Clonality	**Polyclonal**
Application	**WB, E, I, LCI**
Application Note	**This affinity purified antibody has been tested for use in ELISA against the immunizing peptide. Reactivity in other immunoassays is unknown.**
Physical State	**Liquid (sterile filtered)**
Buffer	**0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2**
Immunogen	**This affinity purified antibody was prepared from whole rabbit serum produced by repeated immunizations with a synthetic peptide corresponding to aa 679-694 of Human MDC1 (mediator of DNA damage checkpoint protein 1). MDC1 is hyper-phosphorylated in an ATM-dependent manner.**
Preservative	**0.01% (w/v) Sodium Azide**

Anti-Human MDC1 (RABBIT) Antibody - Additional Information

Gene ID 9656

Other Names
9656

Purity
This is an affinity purified antibody produced by immunoaffinity chromatography using the immunizing peptide after immobilization to a solid phase.

Storage Condition
Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.

Precautions Note
This product is for research use only and is not intended for therapeutic or diagnostic applications.

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Anti-Human MDC1 (RABBIT) Antibody - Protein Information

Name MDC1 {ECO:0000303|PubMed:14695167, ECO:0000312|HGNC:HGNC:21163}

Function
Histone reader protein required for checkpoint-mediated cell cycle arrest in response to DNA damage within both the S phase and G2/M phases of the cell cycle (PubMed:12475977, PubMed:12499369, PubMed:12551934, PubMed:12607003, PubMed:12607004, PubMed:12607005, PubMed:12611903, PubMed:14695167, PubMed:15201865, PubMed:15377652, PubMed:16049003, PubMed:16377563, PubMed:30898438). Specifically recognizes and binds histone H2AX phosphorylated at 'Ser-139', a marker of DNA damage, serving as a scaffold for the recruitment of DNA repair and signal transduction proteins to discrete foci of DNA damage sites (PubMed:12607005, PubMed:15201865, PubMed:16049003, PubMed:16377563, PubMed:30898438). Also required for downstream events subsequent to the recruitment of these proteins (PubMed:12607005, PubMed:15201865, PubMed:16049003, PubMed:16377563, PubMed:18582474). These include phosphorylation and activation of the ATM, CHEK1 and CHEK2 kinases, and stabilization of TP53/p53 and apoptosis (PubMed:12499369, PubMed:12551934, PubMed:12607004). ATM and CHEK2 may also be activated independently by a parallel pathway mediated by TP53BP1 (PubMed:12499369, PubMed:12551934, PubMed:12607004). Required for chromosomal stability during mitosis by promoting recruitment of TOPBP1 to DNA double strand breaks (DSBs): TOPBP1 forms filamentous assemblies that bridge MDC1 and tether broken chromosomes during mitosis (PubMed:30898438). Required for the repair of DSBs via homologous recombination by promoting recruitment of NBN component of the MRN complex to DSBs (PubMed:18411307, PubMed:18582474, PubMed:18583988, PubMed:18678890).

Cellular Location
Nucleus. Chromosome Note=Associated with chromatin (PubMed:12607005, PubMed:15201865, PubMed:16049003, PubMed:16377563). Relocalizes to discrete nuclear foci following DNA damage, this requires 'Ser-139' phosphorylation of H2AX (PubMed:12607005, PubMed:15201865,

PubMed:16049003, PubMed:16377563, PubMed:30898438, PubMed:35842428). Colocalizes with APTX at sites of DNA double-strand breaks (PubMed:20008512)

Tissue Location
Highly expressed in testis.

Anti-Human MDC1 (RABBIT) 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

Anti-Human MDC1 (RABBIT) Antibody - Images

Anti-Human MDC1 (RABBIT) Antibody - Background

Mediator of DNA damage checkpoint protein 1 (MDC1) is required for checkpoint mediated cell cycle arrest in response to DNA damage within both the S phase and G2/M phases of the cell cycle. It may serve as a scaffold for the recruitment of DNA repair and signal transduction proteins to discrete foci of DNA damage marked by 'Ser-139' phosphorylation of histone H2AFX. Also it is required for downstream events subsequent to the recruitment of these proteins. These include phosphorylation and activation of the ATM, CHEK1 and CHEK2 kinases, and stabilization of TP53 and apoptosis. ATM and CHEK2 may also be activated independently by a parallel pathway mediated by TP53BP1.