

CPTC-MRE11A-1 (CAB079978)

Uniprot ID: [P49959](#)

Protein name: MRE11_HUMAN

Full name: Double-strand break repair protein MRE11

Function: Component of the MRN complex, which plays a central role in double-strand break (DSB) repair, DNA recombination, maintenance of telomere integrity and meiosis (PubMed:9651580, PubMed:9590181, PubMed:9705271, PubMed:11741547, PubMed:29670289). The complex possesses single-strand endonuclease activity and double-strand-specific 3'-5' exonuclease activity, which are provided by MRE11 (PubMed:9651580, PubMed:9590181, PubMed:9705271, PubMed:11741547, PubMed:29670289). RAD50 may be required to bind DNA ends and hold them in close proximity (PubMed:9651580, PubMed:9590181, PubMed:9705271, PubMed:11741547, PubMed:29670289). This could facilitate searches for short or long regions of sequence homology in the recombining DNA templates, and may also stimulate the activity of DNA ligases and/or restrict the nuclease activity of MRE11 to prevent nucleolytic degradation past a given point (PubMed:9651580, PubMed:9590181, PubMed:9705271, PubMed:11741547, PubMed:29670289, PubMed:30612738). The complex may also be required for DNA damage signaling via activation of the ATM kinase (PubMed:15064416). In telomeres the MRN complex may modulate t-loop formation (PubMed:10888888).

Subcellular location:

Nucleus (*experimental evidence*)

Chromosome > Telomere (*experimental evidence*)

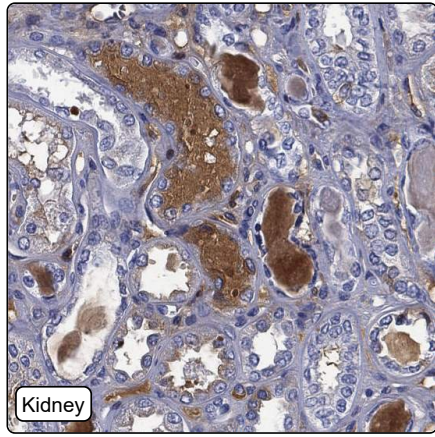
Chromosome (*experimental evidence*)

NOTE: Localizes to discrete nuclear foci after treatment with genotoxic agents.

Protein existence: Experimental evidence at protein level

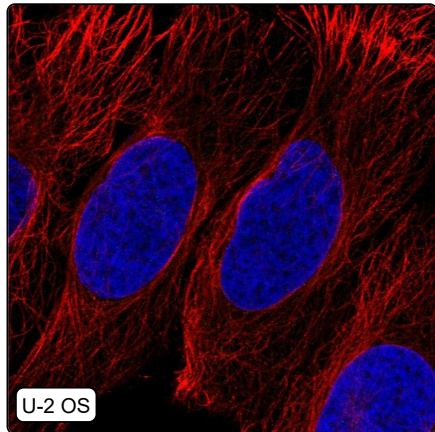
Comment:

Immunohistochemistry



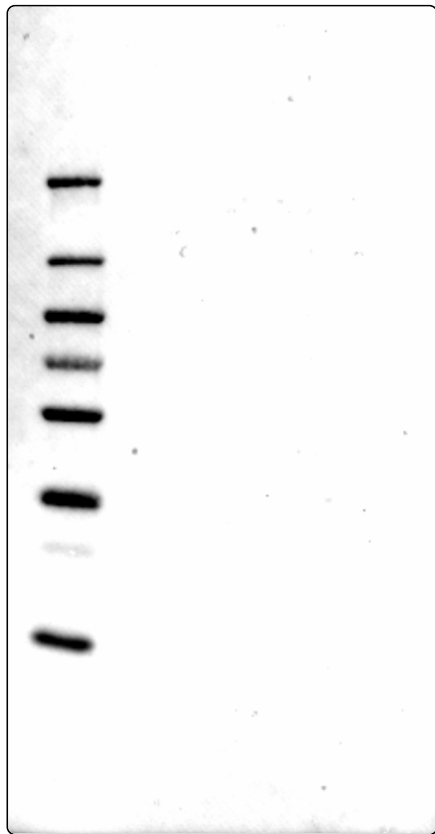
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|---------------------------------|--|
| IHC protocol: | HIER pH6, Dilution 1:600 |
| IHC test staining: | Positivity observed in plasma. Remaining tissues were negative. |
| Literature conformance: | Not consistent with gene/protein characterization data |
| Literature significance: | |
| RNA consistency: | Not consistent with RNA expression data |
| IHC Sibling similarity: | Other antibody shows dissimilar IHC staining pattern |
| IHC fail comment: | ANTIBODY FAILED: Improbable histological location, Not consistent with RNA |

Immunofluorescence



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|--------------------------------|---|
| IF Overlay: | antibody (green), anti-tubuline (red) and DAPI (blue) |
| IF main location: | |
| IF additional location: | |
| IF Antibody score: | Failed IF |
| IF in A549: | Negative |
| IF in HEK 293: | Negative |
| IF in U-2 OS: | Negative |

Western blot



| | |
|--------------------------------|--|
| WB Size markers (kDa): | 250, 130, 100, 70, 55, 35, 25, 15, 10 |
| WB Lanes: | Marker (1), RT4 (2), U-251 MG (3), Plasma (4), Liver (5), Tonsil (6) |
| WB Target weight (kDa): | 13, 14, 25, 78, 81, 81, 81 |
| WB Validation: | Uncertain (No bands detected.) |