

CPTC-RAD50-1 (CAB080379)

Uniprot ID: [Q92878](#)

Protein name: RAD50_HUMAN

Full name: DNA repair protein RAD50

Tissue specificity: Expressed at very low level in most tissues, except in testis where it is expressed at higher level. Expressed in fibroblasts.

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. The complex possesses single-strand endonuclease activity and double-strand-specific 3'-5' exonuclease activity, which are provided by MRE11. RAD50 may be required to bind DNA ends and hold them in close proximity. 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:11741547, PubMed:9590181, PubMed:9705271, PubMed:9651580). 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*)

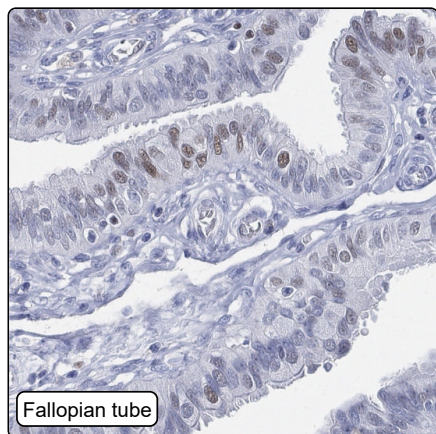
Chromosome (*experimental evidence*)

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

Protein existence: Experimental evidence at protein level

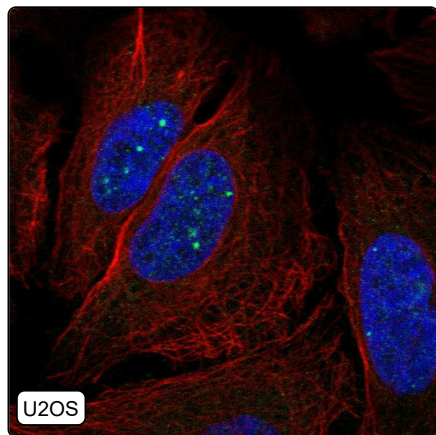
Comment:

Immunohistochemistry



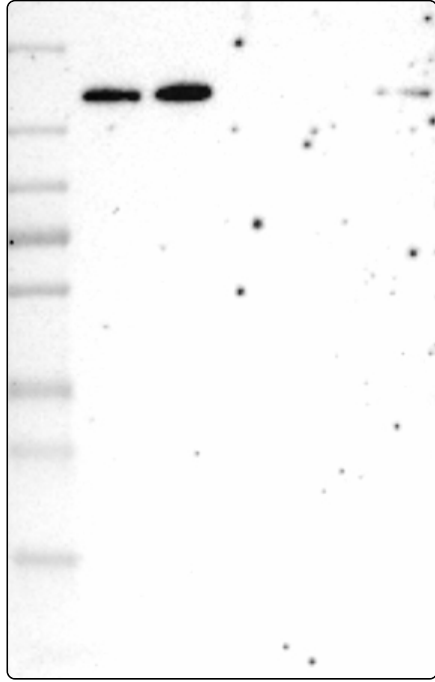
IHC protocol:	HIER pH6, Dilution 1:1540
IHC test staining:	Nuclear staining in a subset of cells in a few tissues e.g. fallopian tube, testis, pancreas and kidney.
Literature conformance:	Not consistent with gene/protein characterization data
Literature significance:	
RNA similarity:	Very low consistency between antibody staining and RNA expression data
RNA tissue specificity:	Low tissue specificity
RNA tissue distribution:	Detected in all
IHC Sibling similarity:	Other antibody shows dissimilar IHC staining pattern

Immunofluorescence



IF Overlay:	antibody (green), anti-tubulin (red) and DAPI (blue)
IF main location:	Nuclear bodies - 10 [3]: Approved (auto)
IF additional location:	
IF approved for publication on HPA:	Yes
IF in THP-1:	Nuclear bodies
IF in U2OS:	Nuclear bodies

Western blot



WB Size markers (kDa):	250, 130, 100, 70, 55, 35, 25, 15, 10
WB Lanes:	Marker (1), RT-4 (2), U-251MG (3), Plasma (4), Liver (5), Tonsil (6)
WB Target weight (kDa):	11, 18, 18, 30, 57, 77, 104, 154
WB Validation:	Supported (Single band corresponding to the predicted size in kDa (+/-20%.))