

CPTC-RTF1-2 (CAB079947)

Uniprot ID: [Q92541](#)

Protein name: RTF1_HUMAN

Full name: RNA polymerase-associated protein RTF1 homolog

Function: Component of the PAF1 complex (PAF1C) which has multiple functions during transcription by RNA polymerase II and is implicated in regulation of development and maintenance of embryonic stem cell pluripotency. PAF1C associates with RNA polymerase II through interaction with POLR2A CTD non-phosphorylated and 'Ser-2'- and 'Ser-5'-phosphorylated forms and is involved in transcriptional elongation, acting both independently and synergistically with TCEA1 and in cooperation with the DSIF complex and HTATSF1. PAF1C is required for transcription of Hox and Wnt target genes. PAF1C is involved in hematopoiesis and stimulates transcriptional activity of KMT2A/MLL1; it promotes leukemogenesis through association with KMT2A/MLL1-rearranged oncoproteins, such as KMT2A/MLL1-MLLT3/AF9 and KMT2A/MLL1-MLLT1/ENL. PAF1C is involved in histone modifications such as ubiquitination of histone H2B and methylation on histone H3 'Lys-4' (H3K4me3). PAF1C recruits the RNF20/40 E3 ubiquitin-protein ligase complex and the E2 enzyme UBE2A or UBE2B to chromatin which mediate monoubiquitination of 'Lys-120' of histone H2B (H2BK120ub1); UB2A/B-mediated H2B ubiquitination is proposed to be coupled to transcription. PAF1C is involved in mRNA 3' end formation probably through association with cleavage and poly(A) factors. In case of infection by influenza A strain H3N2, PAF1C associates with viral NS1 protein, thereby regulating gene transcription. Binds single-stranded DNA. Required for maximal induction of heat-shock genes. Required for the trimethylation of histone H3 'Lys-4' (H3K4me3) on genes involved in stem cell pluripotency; this function is synergistic with CXXC1 indicative for an involvement of a SET1 complex (By similarity).

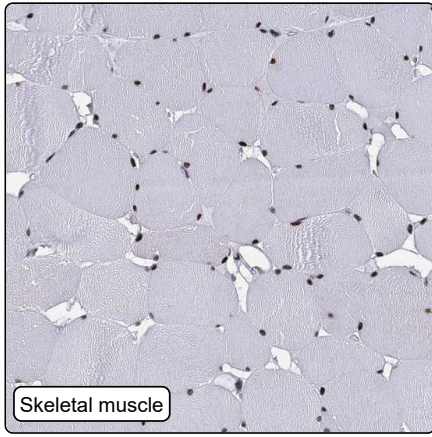
Subcellular location:

Nucleus > Nucleoplasm (*by similarity*)

Protein existence: Experimental evidence at protein level

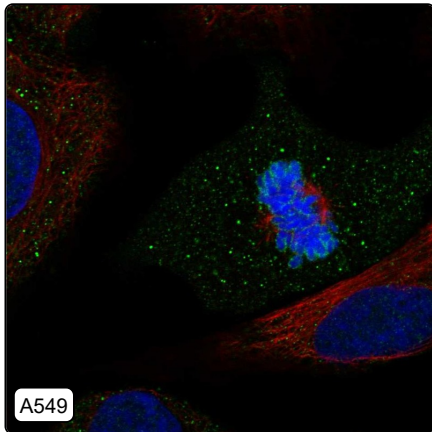
Comment: ICC-IF: We will try to get a good staining of this antibody in two more cell lines, before publication on the HPA. /Ulrika Axelsson

Immunohistochemistry



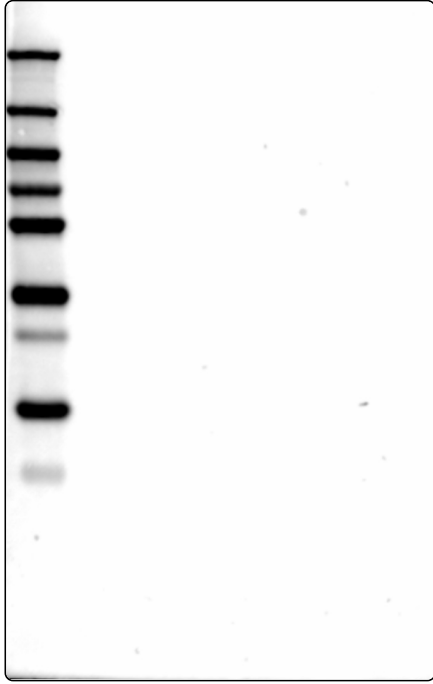
IHC protocol:	HIER pH6, Dilution 1:400
IHC test staining:	Nuclear positivity in most tissues.
Literature conformance:	Consistent with gene/protein characterization data
Literature significance:	Limited
RNA consistency:	Mainly consistent with RNA expression data
IHC Sibling similarity:	Other antibody shows similar IHC staining pattern

Immunofluorescence



IF Overlay:	antibody (green), anti-tubuline (red) and DAPI (blue)
IF main location:	Vesicles - 7: Approved (auto) Mitotic chromosome - 7: Approved (auto)
IF additional location:	
IF Antibody score:	Approved
IF in A549:	Mitotic chromosome Vesicles
IF in HEK 293:	Negative
IF in U-2 OS:	Vesicles

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):	20, 80
WB Validation:	Uncertain (No bands detected.)