

TRAF3 (TNF Receptor Associated Factor 3)

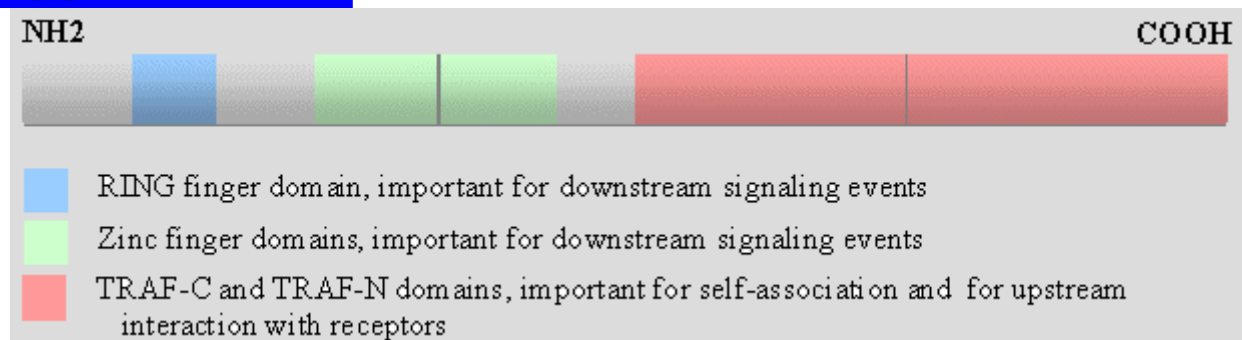
Identity

Other names **CAP-1**
CD40bp
CRAF1
LAP1
Hugo **TRAF3**
Location 14q32.33
between a potential gene LOC254285 and the gene encoding for amnionless protein

DNA/RNA

Description 13 exons spanning approximately 130 kb
Transcription Three alternatively spliced transcript variants encoding two distinct isoforms have been reported.

Protein



Description Isoform 1: 568 amino acids Isoform 2: 543 amino acids
Expression TRAF3 protein is detected in the skin, with a stronger intensity in more differentiated cells in the upper layers of the complex epithelium. TRAF3 is also expressed in the cartilage, in the cardiovascular system, in the trachea, in the salivary gland, in the liver, in the pancreas, in the prostate gland, in the pituitary gland. A gradient of TRAF3 expression appears to exist along the nephron, with progressively higher expression from proximal tubule to collecting duct. In the central nervous system, many but not most neurons in the cerebral cortex, basal ganglia, and brain stem contain at least low levels of TRAF3 protein. In contrast, almost no expression of TRAF3 is detected in the immune system.
Localisation mainly cytoplasmic
Function The TRAF family proteins act at least in part as adapter proteins that recruit other signaling molecules to ligand-bound TNF family receptors. TRAF3 was first described as a molecule that binds the cytoplasmic tail of CD40. Signaling through CD40 in B cells induces rescue from apoptosis, proliferation, differentiation, Ig production, class switching and expression of co-stimulatory molecules. Insights into the in vivo functions of TRAF3 have come from generation of mice deficient for TRAF3. These mice are depleted in all lineages of peripheral leucocytes, and die

shortly after birth. However, B cells from TRAF3^{-/-} upregulate CD23 and proliferate normally in response to CD40 ligand stimulation. Moreover, fetal liver cells from TRAF3 deficient mice can reconstitute the immune system of irradiated wild type mice, although isotype switching in response to T-dependent antigens is defective. Thus, TRAF3 is not required for CD40 signaling, but appears important in T cell-dependent immune responses. These effects of TRAF3 may be mediated through other TNF receptor family members : TRAF3 can bind directly to the cytosolic domains of CD27, CD30, LTbR, LMP-1, and also binds indirectly TNF-R2.

Homology TRAF3 belongs to a family of six proteins (TRAF1 to 6), sharing a common structural organization. TRAF3 counterparts are found in mouse, fly and worm.

Implicated in

Disease Hodgkin disease, Lymphomas.

External links

Nomenclature

[Hugo](#) [TRAF3](#)
[GDB](#) [TRAF3](#)
[Entrez_Gene](#) [TRAF3 7187](#) TNF receptor-associated factor 3

Cards

[Atlas](#) [TRAF3ID271](#)
[GeneCards](#) [TRAF3](#)
[Ensembl](#) [TRAF3](#)
[Genatlas](#) [TRAF3](#)
[GeneLynx](#) [TRAF3](#)
[eGenome](#) [TRAF3](#)
[euGene](#) [7187](#)

Genomic and cartography

[GoldenPath](#) [TRAF3 - 14q32.33](#) [chr14:102313569-102442381 + 14q32.32](#)
(hg17-May_2004)
[Ensembl](#) [TRAF3 - 14q32.32 \[CytoView\]](#)
[NCBI](#) [Genes Cyto](#) [Gene Seq](#) [Map View - NCBI]
[OMIM](#) [Disease map \[OMIM\]](#)
[HomoloGene](#) [TRAF3](#)

Gene and transcription

[Genbank](#) [AF110908](#) [SRS] [AF110908](#) [ENTREZ]
[Genbank](#) [BC075086](#) [SRS] [BC075086](#) [ENTREZ]
[Genbank](#) [BC075087](#) [SRS] [BC075087](#) [ENTREZ]
[Genbank](#) [BX247977](#) [SRS] [BX247977](#) [ENTREZ]
[Genbank](#) [L38509](#) [SRS] [L38509](#) [ENTREZ]
[RefSeq](#) [NM_003300](#) [SRS] [NM_003300](#) [ENTREZ]
[RefSeq](#) [NM_145725](#) [SRS] [NM_145725](#) [ENTREZ]
[RefSeq](#) [NM_145726](#) [SRS] [NM_145726](#) [ENTREZ]
[RefSeq](#) [NT_086807](#) [SRS] [NT_086807](#) [ENTREZ]
[AceView](#) [TRAF3](#) AceView - NCBI
[TRASER](#) [TRAF3](#) Traser - Stanford
[Unigene](#) [Hs.510528](#) [SRS] [Hs.510528](#) [NCBI] [HS510528](#) [spliceNest]

Protein : pattern, domain, 3D structure

SwissProt	Q13114 [SRS] Q13114 [EXPASY] Q13114 [INTERPRO]
Prosite	PS50144 MATH [SRS] PS50144 MATH [Expasy]
Prosite	PS00518 ZF_RING_1 [SRS] PS00518 ZF_RING_1 [Expasy]
Prosite	PS50089 ZF_RING_2 [SRS] PS50089 ZF_RING_2 [Expasy]
Prosite	PS50145 ZF_TRAF [SRS] PS50145 ZF_TRAF [Expasy]
Interpro	IPR002083 MATH [SRS] IPR002083 MATH [EBI]
Interpro	IPR008974 Traf_like [SRS] IPR008974 Traf_like [EBI]
Interpro	IPR001841 Znf_ring [SRS] IPR001841 Znf_ring [EBI]
Interpro	IPR001293 Znf_TRAF [SRS] IPR001293 Znf_TRAF [EBI]
CluSTr	Q13114
Pfam	PF00917 MATH [SRS] PF00917 MATH [Sanger] pfam00917 [NCBI-CDD]
Pfam	PF00097 zf-C3HC4 [SRS] PF00097 zf-C3HC4 [Sanger] pfam00097 [NCBI-CDD]
Pfam	PF02176 zf-TRAF [SRS] PF02176 zf-TRAF [Sanger] pfam02176 [NCBI-CDD]
Blocks	Q13114
PDB	1FLK [SRS] 1FLK [PdbSum], 1FLK [IMB]
PDB	1FLL [SRS] 1FLL [PdbSum], 1FLL [IMB]
PDB	1KZZ [SRS] 1KZZ [PdbSum], 1KZZ [IMB]
PDB	1LOA [SRS] 1LOA [PdbSum], 1LOA [IMB]
Polymorphism : SNP, mutations, diseases	
OMIM	601896 [map]
GENECLINICS	601896
SNP	TRAF3 [dbSNP-NCBI]
SNP	NM_003300 [SNP-NCI]
SNP	NM_145725 [SNP-NCI]
SNP	NM_145726 [SNP-NCI]
SNP	TRAF3 [GeneSNPs - Utah] TRAF3 [SNP - CSHL] TRAF3 [HGBase - SRS]
General knowledge	
Family Browser	TRAF3 [UCSC Family Browser]
SOURCE	NM_003300
SOURCE	NM_145725
SOURCE	NM_145726
SMD	Hs.510528
SAGE	Hs.510528
Amigo	process apoptosis
Amigo	process induction of apoptosis
Amigo	function protein binding
Amigo	process protein ubiquitination
Amigo	function signal transducer activity
Amigo	process signal transduction
Amigo	component ubiquitin ligase complex
Amigo	function ubiquitin-protein ligase activity
Amigo	function zinc ion binding
BIOCARTA	CD40L Signaling Pathway
BIOCARTA	TACI and BCMA stimulation of B cell immune responses.
BIOCARTA	TNFR2 Signaling Pathway
PubGene	TRAF3
Other databases	
Probes	
Probe	TRAF3 Related clones (RZPD - Berlin)

Bibliography

Involvement of CRAF1, a relative of TRAF, in CD40 signaling.

Cheng G, Cleary AM, Ye ZS, Hong DI, Lederman S, Baltimore DS.
Science 1995; 267: 1494-1498.

Targeted disruption of TRAF3 leads to postnatal lethality and defective T-dependent immune responses.

Xu Y, Cheng G, Baltimore D.
Immunity 1996; 5: 407-415.

Immunohistochemical analysis of in vivo patterns of TRAF3 expression, a member of the TNF Receptor-Associated Factor family.

Krajewski S, Zapata JM, Krajewska M, VanArsdale T, Shabaik A, Gascoyne RD, Reed JC.
J immunol 1997; 159: 5841-5852.

A single gene for human TRAF-3 at chromosome 14q32-3 encodes a variety of mRNA species by alternative polyadenylation, mRNA splicing and transcription initiation.

Eyndhoven WG, Frank D, Kalachikov S, Cleary AM, Hong DI, Cho E, Nasr S, Perez AJ, Mackus WJM, Cayanis E, Wellington S, Fischer SG, Warburton D, Lederman S.
Mol Immunol 1998; 35: 1189-1206.

Epstein-Barr virus and a cellular signaling pathway in lymphomas from immunosuppressed patients.

Liebowitz D.
N Engl J Med 1998; 338: 1413-1421

Hodgkin disease : pharmacologic intervention of the CD40-NF kappa B pathway by a protease inhibitor.

Annunziata CM, Safiran YJ, Irving SG, Kasid UN, Cossman J.
Blood 2000; 96: 2841-2848.

Membrane localization of TRAF3 enables JNK activation.

Dadgostar H, Cheng G.
J biol Chem 2000; 275: 2539-2544.

Tumor necrosis factor receptor-associated factors (TRAFs)AUTHORS

Bradley JR, Pober JS.
Oncogene 2001; 20: 6482-6491. (review)

[REVIEW articles](#)

automatic search in PubMed

[Last year](#)

[publications](#)

automatic search in PubMed

[BiblioGene - INIST](#)

Contributor(s)

Written 08-2002 Valérie Kedinge

Citation

This paper should be referenced as such :

Kedinge V . TRAF3 (TNF Receptor Associated Factor 3). Atlas Genet Cytogenet Oncol Haematol. August 2002 .

URL : <http://www.infobiogen.fr/services/chromcancer/Genes/TRAF3ID271.html>

© *Atlas of Genetics and Cytogenetics in Oncology and Haematology*
