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phospho-ATF2 (Ser322) Rabbit pAb

Catalog # AP99963

Product Information

Application	WB, IHC-P, IHC-F, IF
Primary Accession	P16951
Other Accession	P16951
Reactivity	Rat, Mouse
Predicted	Human, Rabbit, Horse
Host	Rabbit
Clonality	Polyclonal
Calculated MW	52298
Physical State	Liquid
Immunogen	KLH conjugated Synthesised phosphopeptide derived from mouse ATF2 around the phosphorylation site of Ser322
Epitope Specificity	NT(p-S)GR
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Belongs to the bZIP family. ATF subfamily.Contains 1 bZIP domain.Contains 1 C2H2-type zinc finger.
SUBUNIT	Binds DNA as a dimer and can form a homodimer in the absence of DNA. Can form a heterodimer with JUN. Interacts with SMAD3 and SMAD4. Binds through its N-terminal region to UTF1 which acts as a coactivator of ATF2 transcriptional activity.
Post-translational modifications	Phosphorylation of Thr-69 by MAPK14 and MAPK11, and at Thr-71 by MAPK1/ERK2, MAPK3/ERK1, MAPK11, MAPK12 and MAPK14 in response to external stimulus like insulin causes increased transcriptional activity. Phosphorylated by PLK3 following hyperosmotic stress. Also phosphorylated and activated by JNK and CaMK4.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	ATF2 is a member of the ATF/CREB family of basic region leucine zipper DNA binding proteins that regulates transcription by binding to a consensus cAMP response element (CRE) in the promoter of various viral and cellular genes. Many of these genes are important in cell growth and differentiation, and in stress and immune responses. ATF2 is a nuclear protein that binds DNA as a dimer and can form dimers with members of the ATF/CREB and Jun/Fos families. It is a stronger activator as a heterodimer with cJun than as a homodimer. Several isoforms of ATF2 arise by differential splicing. The stable native full length ATF2 is transcriptionally inactive as a result of an inhibitory direct intramolecular interaction of its carboxy terminal DNA binding domain with the amino terminal transactivation domain. Following dimerization ATF2 becomes a short lived protein that undergoes ubiquitination and proteolysis, seemingly in a protein phosphatase-dependent mechanism. Stimulation of the transcriptional activity of ATF2 occurs following cellular stress induced by several genotoxic agents, inflammatory cytokines, and UV irradiation. This activation requires phosphorylation of two threonine residues in ATF2 by both JNK/SAP kinase and p38 MAP kinase. ATF2 is abundantly expressed in brain.

Additional Information

Gene ID	11909
Other Names	CRE-BP1; CREB-2; CREB2; HB16; TREB7; Atf-2; CRE-BP; D130078H02Rik; Tg(Gzma-Klra1)7Wum; mXBP; ATF2_HUMAN; ATF2; cAMP-dependent transcription factor ATF-2; Activating transcription factor 2; Cyclic AMP-responsive element-binding protein 2 (CREB-2 | cAMP-responsive element-binding protein 2); cAMP response element-binding protein CRE-BP1; CREBP1; ATF2_MOUSE; MXBP protein; ATF2_RAT; cAMP responsive element binding protein 2; ATF2 (phospho-S322); p-ATF2; phospho-ATF2; ATF2 (phospho-Ser322)
Dilution	WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	Atf2
Function	Transcriptional activator which regulates the transcription of various genes, including those involved in anti-apoptosis, cell growth, and DNA damage response (PubMed:41570820). Dependent on its binding partner, binds to CRE (cAMP response element) consensus sequences (5'-TGACGTCA-3') or to AP-1 (activator protein 1) consensus sequences (5'-TGACTCA-3') (By similarity). In the nucleus, contributes to global transcription and the DNA damage response, in addition to specific transcriptional activities that are related to cell development, proliferation and death (By similarity). In liver, acts as a regulator of glucose metabolism downstream of OR5V1 signaling, which promotes ATF2 activation, leading to expression of carnitine palmitoyltransferase CPT1A (PubMed:41570820). In the cytoplasm, interacts with and perturbs HK1- and VDAC1-containing complexes at the mitochondrial outer membrane, thereby impairing mitochondrial membrane potential, inducing mitochondrial leakage and promoting cell death (By similarity). The phosphorylated form (mediated by ATM) plays a role in the DNA damage response and is involved in the ionizing radiation (IR)- induced S phase checkpoint control and in the recruitment of the MRN complex into the IR-induced foci (IRIF) (By similarity). In concert with CUL3 and RBX1, promotes the degradation of KAT5 thereby attenuating its ability to acetylate and activate ATM (By similarity). Can elicit oncogenic or tumor suppressor activities depending on the tissue or cell type (By similarity).
Cellular Location	Nucleus. Cytoplasm. Mitochondrion outer membrane {ECO:0000250|UniProtKB:P15336}. Note=Shuttles between the cytoplasm and the nucleus and heterodimerization with JUN is essential for the nuclear localization. Localization to the cytoplasm is observed under conditions of cellular stress and in disease states. Localizes at the mitochondrial outer membrane in response to genotoxic stress Phosphorylation at Thr-52 is required for its nuclear localization and negatively regulates its mitochondrial localization. Co-localizes with the MRN complex in the IR-induced foci (IRIF) {ECO:0000250|UniProtKB:P15336}

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.