

ARG66997 anti-XBP1 antibody

Package: 100 µl
Store at: -20°C

Summary

Product Description	Rabbit Polyclonal antibody recognizes XBP1
Tested Reactivity	Hu
Predict Reactivity	Ms, Rat
Tested Application	ICC/IF, WB
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Target Name	XBP1
Species	Human
Immunogen	Synthetic peptide around the N-terminal region of Human XBP1.
Conjugation	Un-conjugated
Alternate Names	XBP-1; Tax-responsive element-binding protein 5; TREB-5; X-box-binding protein 1; XBP2; TREB5

Application Instructions

Application table	Application	Dilution
	ICC/IF	1:200–1:500
	WB	1:2000 - 1:4000
Application Note	* The dilutions indicate recommended starting dilutions and the optimal dilutions or concentrations should be determined by the scientist.	

Properties

Form	Liquid
Purification	Affinity purified.
Buffer	100 mM Tris Glycine (pH 7.0), 0.025% ProClin 300 and 20% Glycerol.
Preservative	0.025% ProClin 300
Stabilizer	20% Glycerol
Storage instruction	For continuous use, store undiluted antibody at 2-8°C for up to a week. For long-term storage, aliquot and store at -20°C. Storage in frost free freezers is not recommended. Avoid repeated freeze/thaw cycles. Suggest spin the vial prior to opening. The antibody solution should be gently mixed before use.
Note	For laboratory research only, not for drug, diagnostic or other use.

Gene Symbol XBP1

Gene Full Name X-box binding protein 1

Background This gene encodes a transcription factor that regulates MHC class II genes by binding to a promoter element referred to as an X box. This gene product is a bZIP protein, which was also identified as a cellular transcription factor that binds to an enhancer in the promoter of the T cell leukemia virus type 1 promoter. It may increase expression of viral proteins by acting as the DNA binding partner of a viral transactivator. It has been found that upon accumulation of unfolded proteins in the endoplasmic reticulum (ER), the mRNA of this gene is processed to an active form by an unconventional splicing mechanism that is mediated by the endonuclease inositol-requiring enzyme 1 (IRE1). The resulting loss of 26 nt from the spliced mRNA causes a frame-shift and an isoform XBP1(S), which is the functionally active transcription factor. The isoform encoded by the unspliced mRNA, XBP1(U), is constitutively expressed, and thought to function as a negative feedback regulator of XBP1(S), which shuts off transcription of target genes during the recovery phase of ER stress. A pseudogene of XBP1 has been identified and localized to chromosome 5. [provided by RefSeq, Jul 2008]

Function Functions as a transcription factor during endoplasmic reticulum (ER) stress by regulating the unfolded protein response (UPR). Required for cardiac myogenesis and hepatogenesis during embryonic development, and the development of secretory tissues such as exocrine pancreas and salivary gland (By similarity). Involved in terminal differentiation of B lymphocytes to plasma cells and production of immunoglobulins. Modulates the cellular response to ER stress in a PIK3R-dependent manner. Binds to the cis-acting X box present in the promoter regions of major histocompatibility complex class II genes. Involved in VEGF-induced endothelial cell (EC) proliferation and retinal blood vessel formation during embryonic development but also for angiogenesis in adult tissues under ischemic conditions. Functions also as a major regulator of the UPR in obesity-induced insulin resistance and type 2 diabetes for the management of obesity and diabetes prevention (By similarity).

Isoform 1: plays a role in the unconventional cytoplasmic splicing processing of its own mRNA triggered by the endoplasmic reticulum (ER) transmembrane endoribonuclease ENR1: upon ER stress, the emerging XBP1 polypeptide chain, as part of a mRNA-ribosome-nascent chain (R-RNC) complex, cotranslationally recruits its own unprocessed mRNA through transient docking to the ER membrane and translational pausing, therefore facilitating efficient IRE1-mediated XBP1 mRNA isoform 2 production. In endothelial cells (EC), associated with KDR, promotes IRE1-mediated XBP1 mRNA isoform 2 productions in a vascular endothelial growth factor (VEGF)-dependent manner, leading to EC proliferation and angiogenesis. Functions as a negative feed-back regulator of the potent transcription factor XBP1 isoform 2 protein levels through proteasome-mediated degradation, thus preventing the constitutive activation of the ER stress response signaling pathway. Inhibits the transactivation activity of XBP1 isoform 2 in myeloma cells (By similarity). Acts as a weak transcriptional factor. Together with HDAC3, contributes to the activation of NFE2L2-mediated HMOX1 transcription factor gene expression in a PI(3)K/mTORC2/Akt-dependent signaling pathway leading to EC survival under disturbed flow/oxidative stress. Binds to the ER stress response element (ERSE) upon ER stress. Binds to the consensus 5'-GATGACGTG[TG]N(3)[AT]T-3' sequence related to cAMP responsive element (CRE)-like sequences. Binds the Tax-responsive element (TRE) present in the long terminal repeat (LTR) of T cell leukemia virus type 1 (HTLV-I) and to the TPA response elements (TRE). Associates preferentially to the HDAC3 gene promoter region in a static flow-dependent manner. Binds to the CDH5/VE-cadherin gene promoter region.

Isoform 2: functions as a stress-inducible potent transcriptional activator during endoplasmic reticulum (ER) stress by inducing unfolded protein response (UPR) target genes via binding to the UPR element (UPRE). Up-regulates target genes encoding ER chaperones and ER-associated degradation (ERAD) components to enhance the capacity of productive folding and degradation mechanism, respectively, in order to maintain the homeostasis of the ER under ER stress. Plays a role in the production of immunoglobulins and interleukin-6 in the presence of stimuli required for plasma cell differentiation (By similarity). Induces phospholipid biosynthesis and ER expansion. Contributes to the VEGF-induced endothelial cell (EC) growth and proliferation in a Akt/GSK-dependent and/or -independent signaling pathway, respectively, leading to beta-catenin nuclear translocation and E2F2 gene expression. Promotes umbilical vein EC apoptosis and atherosclerotic development in a caspase-dependent signaling pathway, and contributes to VEGF-induced EC proliferation and angiogenesis in adult tissues under ischemic conditions. Involved in the regulation of endostatin-induced autophagy in EC through BECN1 transcriptional activation. Plays a role as an oncogene by promoting tumor progression: stimulates zinc finger protein SNAI1 transcription to induce epithelial-to-mesenchymal (EMT) transition, cell migration and invasion of breast cancer cells. Involved in adipocyte differentiation by regulating lipogenic gene expression during lactation. Plays a role in the survival of both dopaminergic neurons of the substantia nigra pars compacta (SNpc), by maintaining protein homeostasis and of myeloma cells. Increases insulin sensitivity in the liver as a response to a high carbohydrate diet, resulting in improved

glucose tolerance. Improves also glucose homeostasis in an ER stress- and/or insulin-independent manner through both binding and proteasome-induced degradation of the transcription factor FOXO1, hence resulting in suppression of gluconeogenic genes expression and in a reduction of blood glucose levels. Controls the induction of de novo fatty acid synthesis in hepatocytes by regulating the expression of a subset of lipogenic genes in an ER stress- and UPR-independent manner (By similarity). Associates preferentially to the HDAC3 gene promoter region in a disturbed flow-dependent manner. Binds to the BECN1 gene promoter region. Binds to the CDH5/VE-cadherin gene promoter region. Binds to the ER stress response element (ERSE) upon ER stress. Binds to the 5'-CCACG-3' motif in the PPARG promoter (By similarity). [UniProt]

Calculated Mw

Isoform 1: 29 kDa
Isoform 2: 40 kDa

PTM

Isoform 2 is acetylated by EP300; acetylation positively regulates the transcriptional activity of XBP1 isoform 2 (PubMed:20955178). Isoform 2 is deacetylated by SIRT1; deacetylation negatively regulates the transcriptional activity of XBP1 isoform 2 (PubMed:20955178).

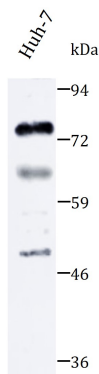
Isoform 1 is ubiquitinated, leading to proteasome-mediated degradation in response to ER stress (PubMed:11779464, PubMed:16461360, PubMed:25239945).

X-box-binding protein 1, cytoplasmic form and luminal form are produced by intramembrane proteolytic cleavage of ER membrane-anchored isoform 1 triggered by HM13/SPP in a DERL1-RNF139-dependent and VCP/p97-independent manner. X-box-binding protein 1, luminal form is ubiquitinated leading to proteasomal degradation (PubMed:25239945). [UniProt]

Cellular Localization

Endoplasmic reticulum, Nucleus, Cytoplasm, Endoplasmic reticulum membrane, Single-pass type II membrane protein, Peripheral membrane protein, Membrane. [UniProt]

Images



ARG66997 anti-XBP1 antibody WB image

Western blot: Human Huh-7 cell stained with ARG66997 anti-XBP1 antibody at 1:1000 dilution.