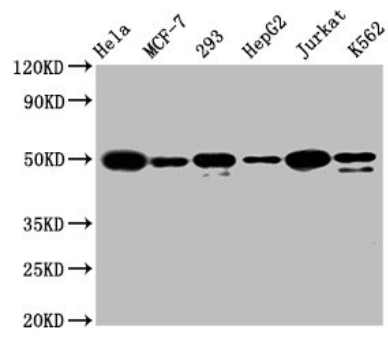
ATF4 Recombinant Monoclonal Antibody

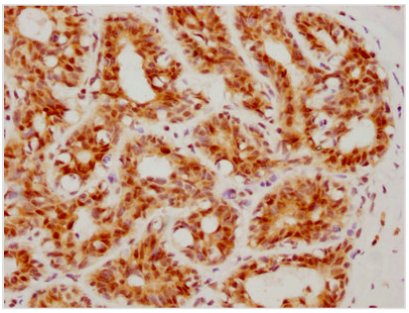
Product Code	CSB-RA002272A0HU
Abbreviation	Cyclic AMP-dependent transcription factor ATF-4
Storage	Upon receipt, store at -20°C or -80°C. Avoid repeated freeze.
Uniprot No.	P18848
Immunogen	A synthesized peptide derived from human ATF4
Species Reactivity	Human
Tested Applications	ELISA, WB, IHC, IF, FC, IP; Recommended dilution: WB:1:500-1:5000, IHC:1:50-1:200, IF:1:20-1:200, IP:1:200-1:1000
Relevance	Transcriptional activator. Binds the cAMP response element (CRE) (consensus: 5'-GTGACGT[AC][AG]-3'), a sequence present in many viral and cellular promoters. Cooperates with FOXO1 in osteoblasts to regulate glucose homeostasis through suppression of beta-cell production and decrease in insulin production (By similarity). It binds to a Tax-responsive enhancer element in the long terminal repeat of HTLV-I. Regulates the induction of DDIT3/CHOP and asparagine synthetase (ASNS) in response to endoplasmic reticulum (ER) stress. In concert with DDIT3/CHOP, activates the transcription of TRIB3 and promotes ER stress-induced neuronal apoptosis by regulating the transcriptional induction of BBC3/PUMA. Activates transcription of SIRT4. Regulates the circadian expression of the core clock component PER2 and the serotonin transporter SLC6A4. Binds in a circadian time-dependent manner to the cAMP response elements (CRE) in the SLC6A4 and PER2 promoters and periodically activates the transcription of these genes. During ER stress response, activates the transcription of NLRP1, possibly in concert with other factors (PubMed:26086088).
Form	Liquid
Conjugate	Non-conjugated
Storage Buffer	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Purification Method	Affinity-chromatography
Isotype	Rabbit IgG
Clonality	Monoclonal
Alias	Cyclic AMP-dependent transcription factor ATF-4, cAMP-dependent transcription factor ATF-4, Activating transcription factor 4, Cyclic AMP-responsive element-binding protein 2, CREB-2, cAMP-responsive element-binding protein 2, DNA-binding protein TAXREB67, Tax-responsive enhancer element-binding protein 67, TaxREB67, ATF4, CREB2, TXREB
Immunogen Species	Homo sapiens (Human)
Research Area	Epigenetics and Nuclear Signaling

Gene Names	ATF4
Clone No.	9E1

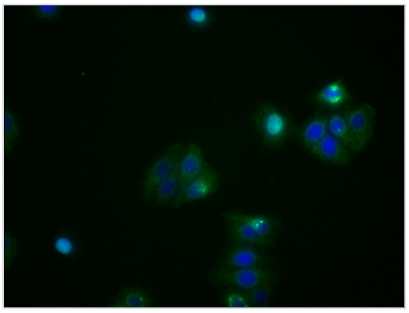
Image



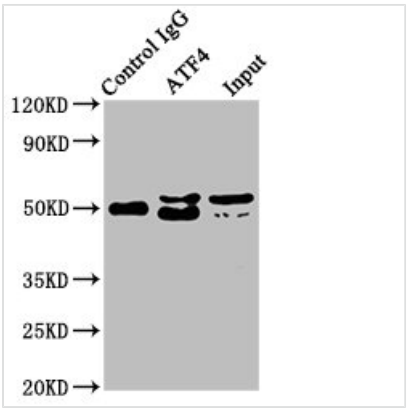
Western Blot
Positive WB detected in: Hela whole cell lysate, MCF-7 whole cell lysate, 293 whole cell lysate, HepG2 whole cell lysate, Jurkat whole cell lysate, K562 whole cell lysate
All lanes: ATF4 antibody at 1.6µg/ml
Secondary
Goat polyclonal to rabbit IgG at 1/50000 dilution
Predicted band size: 39 KDa
Observed band size: 50 KDa



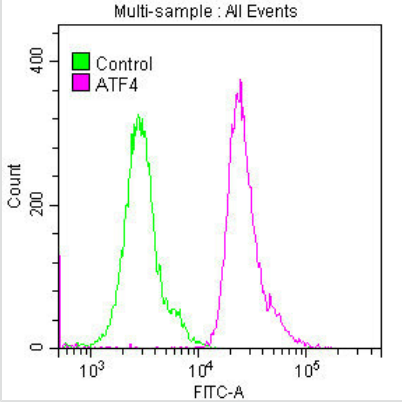
IHC image of CSB-RA002272A0HU diluted at 1:160 and staining in paraffin-embedded human breast cancer performed on a Leica BondTM system. After dewaxing and hydration, antigen retrieval was mediated by high pressure in a citrate buffer (pH 6.0). Section was blocked with 10% normal goat serum 30min at RT. Then primary antibody (1% BSA) was incubated at 4? overnight. The primary is detected by a biotinylated secondary antibody and visualized using an HRP conjugated SP system.



Immunofluorescence staining of HepG2 cells with CSB-RA002272A0HU at 1:53, counter-stained with DAPI. The cells were fixed in 4% formaldehyde, permeabilized using 0.2% Triton X-100 and blocked in 10% normal Goat Serum. The cells were then incubated with the antibody overnight at 4?. The secondary antibody was Alexa Fluor 488-congugated AffiniPure Goat Anti-Rabbit IgG (H+L).



Immunoprecipitating ATF4 in Hela whole cell lysate
Lane 1: Rabbit control IgG instead of CSB-RA002272A0HU in Hela whole cell lysate. For western blotting, a HRP-conjugated Protein G antibody was used as the secondary antibody (1/2000)
Lane 2: CSB-RA002272A0HU (3µg) + Hela whole cell lysate (500µg)
Lane 3: Hela whole cell lysate (20µg)



Overlay histogram showing Hela cells stained with CSB-RA002272A0HU (red line) at 1:50. The cells were fixed with 70% Ethylalcohol (18h) and then permeabilized with 0.3% Triton X-100 for 2 min. The cells were then incubated in 1x PBS /10% normal goat serum to block non-specific protein-protein interactions followed by primary antibody for 1 h at 4?. The secondary antibody used was FITC goat anti-rabbit IgG (H+L) at 1/200 dilution for 1 h at 4?. Control antibody (green line) was used under the same conditions. Acquisition of >10,000 events was performed.

Description

The ATF4 recombinant monoclonal antibody is generated using DNA recombinant technology and in vitro genetic manipulation. The process begins with immunizing animals using a synthesized peptide derived from human ATF4. B cells are isolated from the immunized animals and subjected to screening and identification of positive B cells. The light and heavy chains of the ATF4 antibody are amplified through PCR and integrated into a plasmid vector to create a recombinant vector. This vector is then introduced into host cells for antibody expression. The ATF4 recombinant monoclonal antibody is purified from the cell culture supernatant using affinity chromatography. It exhibits high specificity towards human ATF4 protein and is well-suited for various applications, including ELISA, WB, IHC, IF, FC, and IP.

The ATF4 protein is a transcription factor that regulates the expression of genes involved in various cellular processes such as metabolism, stress response, and differentiation. In response to stress, ATF4 is activated by phosphorylation and translocates to the nucleus where it binds to the DNA and activates the transcription of downstream target genes that are involved in amino acid metabolism, stress response, redox regulation, and apoptosis. ATF4 also plays a critical role in regulating the unfolded protein response (UPR). In addition, ATF4 is involved in the regulation of osteoblast differentiation, where it promotes the expression of genes involved in bone formation.