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IGF2BP1 Antibody (C-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP10466b

Product Information

Application	WB, IHC-P, FC, E
Primary Accession	Q9NZI8
Other Accession	Q9CPN8, O00425, Q9PW80, Q5ZLP8, Q8CGX0, O88477, O57526, NP_006537.3
Reactivity	Human, Rat, Mouse
Predicted	Mouse, Rat, Zebrafish, Chicken, Xenopus, Bovine, Canine, Rabbit
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB21526
Calculated MW	63481
Antigen Region	508-534

Additional Information

Gene ID	10642
Other Names	Insulin-like growth factor 2 mRNA-binding protein 1, IGF2 mRNA-binding protein 1, IMP-1, IMP1, Coding region determinant-binding protein, CRD-BP, IGF-II mRNA-binding protein 1, VICKZ family member 1, Zipcode-binding protein 1, ZBP-1, IGF2BP1, CRDBP, VICKZ1, ZBP1
Target/Specificity	This IGF2BP1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 508-534 amino acids from the C-terminal region of human IGF2BP1.
Dilution	WB~~1:1000 IHC-P~~1:100~500 FC~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	IGF2BP1 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	IGF2BP1

Synonyms CRDBP, VICKZ1, ZBP1

Function RNA-binding factor that recruits target transcripts to cytoplasmic protein-RNA complexes (mRNPs). This transcript 'caging' into mRNPs allows mRNA transport and transient storage. It also modulates the rate and location at which target transcripts encounter the translational apparatus and shields them from endonuclease attacks or microRNA-mediated degradation. Preferentially binds to N6- methyladenosine (m6A)-containing mRNAs and increases their stability (PubMed:29476152, PubMed:32245947). Plays a direct role in the transport and translation of transcripts required for axonal regeneration in adult sensory neurons (By similarity). Regulates localized beta-actin/ACTB mRNA translation, a crucial process for cell polarity, cell migration and neurite outgrowth. Co-transcriptionally associates with the ACTB mRNA in the nucleus. This binding involves a conserved 54-nucleotide element in the ACTB mRNA 3'-UTR, known as the 'zipcode'. The RNP thus formed is exported to the cytoplasm, binds to a motor protein and is transported along the cytoskeleton to the cell periphery. During transport, prevents ACTB mRNA from being translated into protein. When the RNP complex reaches its destination near the plasma membrane, IGF2BP1 is phosphorylated. This releases the mRNA, allowing ribosomal 40S and 60S subunits to assemble and initiate ACTB protein synthesis. Monomeric ACTB then assembles into the subcortical actin cytoskeleton (By similarity). During neuronal development, key regulator of neurite outgrowth, growth cone guidance and neuronal cell migration, presumably through the spatiotemporal fine tuning of protein synthesis, such as that of ACTB (By similarity). May regulate mRNA transport to activated synapses (By similarity). Binds to and stabilizes ABCB1/MDR-1 mRNA (By similarity). During interstinal wound repair, interacts with and stabilizes PTGS2 transcript. PTGS2 mRNA stabilization may be crucial for colonic mucosal wound healing (By similarity). Binds to the 3'-UTR of IGF2 mRNA by a mechanism of cooperative and sequential dimerization and regulates IGF2 mRNA subcellular localization and translation. Binds to MYC mRNA, in the coding region instability determinant (CRD) of the open reading frame (ORF), hence preventing MYC cleavage by endonucleases and possibly microRNA targeting to MYC-CRD (PubMed:29476152). Binding to MYC mRNA is enhanced by m6A-modification of the CRD (PubMed:29476152). Binds to the 3'-UTR of CD44 mRNA and stabilizes it, hence promotes cell adhesion and invadopodia formation in cancer cells. Binds to the oncofetal H19 transcript and to the neuron-specific TAU mRNA and regulates their localizations. Binds to and stabilizes BTRC/FBW1A mRNA. Binds to the adenine-rich autoregulatory sequence (ARS) located in PABPC1 mRNA and represses its translation. PABPC1 mRNA-binding is stimulated by PABPC1 protein. Prevents BTRC/FBW1A mRNA degradation by disrupting microRNA- dependent interaction with AGO2. Promotes the directed movement of tumor-derived cells by fine-tuning intracellular signaling networks. Binds to MAPK4 3'-UTR and inhibits its translation. Interacts with PTEN transcript open reading frame (ORF) and prevents mRNA decay. This combined action on MAPK4 (down-regulation) and PTEN (up-regulation) antagonizes HSPB1 phosphorylation, consequently it prevents G-actin sequestration by phosphorylated HSPB1, allowing F-actin polymerization. Hence enhances the velocity of cell migration and stimulates directed cell migration by PTEN-modulated polarization. Interacts with Hepatitis C virus (HCV) 5'-UTR and 3'-UTR and specifically enhances translation at the HCV IRES, but not 5'-cap-dependent translation, possibly by recruiting eIF3. Interacts with HIV-1 GAG protein and blocks the formation of infectious HIV-1 particles. Reduces HIV-1 assembly by inhibiting viral RNA packaging, as well as assembly and processing of GAG protein on cellular membranes. During cellular stress, such as oxidative stress or heat shock, stabilizes target mRNAs that are recruited to stress granules, including CD44, IGF2, MAPK4, MYC, PTEN, RAPGEF2 and RPS6KA5 transcripts.

Cellular Location	Nucleus. Cytoplasm. Cytoplasm, perinuclear region. Cytoplasm, P-body. Cytoplasm, Stress granule. Cell projection, lamellipodium. Cell projection, dendrite Cell projection, dendritic spine. Cell projection, growth cone. Cell projection, filopodium. Cell projection, axon. Note=In the nucleus, located in discrete foci, coinciding with the sites of ACTB transcription (By similarity). In the cytoplasm, localizes in cytoplasmic mRNP granules. Colocalizes with microtubules in growth cone filopodia and along neurites in neuronal cells (By similarity). Cytoplasmic colocalization with ACTB mRNA is partially lost at the cell periphery, suggesting release of the transcript. In neuronal processes, exhibits fast retrograde and anterograde movements, when associated with ACTB mRNA; this motility is lost when the association is inhibited (By similarity). In hippocampal neurons, predominantly located within dendrites, particularly at dendritic branching points in young cells, compared to axons (By similarity). In axons, predominantly found in axonal branches and their growth cones (By similarity). In motile cells, such as migrating fibroblasts, localizes to leading edges where it colocalizes with microtubules and microfilaments and to retracting tails (By similarity). Dendritic levels are regulated by neuronal activity and glutaminergic signals: they are increased by KCl-induced depolarization, which induces rapid efflux from the cell body into dendrites, and decreased by the NMDA receptor agonist (By similarity) In motile cells, transported towards the leading edge into the cortical region of the lamellipodia where it is connected to microfilaments (By similarity). In response to cellular stress, such as oxidative stress or heat shock, recruited to stress granules, but not to processing bodies.
Tissue Location	Mainly expressed in the embryo, including in fetal liver, fetal lung, fetal kidney, fetal thymus (at protein level). Also expressed follicles of ovary, as well as in gonocytes of testis, spermatogonia, semen, oocytes and placenta (at protein level) Expressed in various cancers, including testis and lung cancers (at protein level), as well as kidney, prostate and trachea cancers

Background

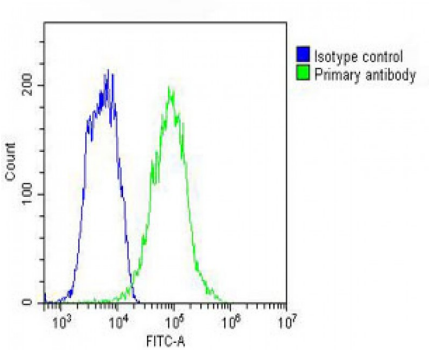
IGF2BP1 is a member of the insulin-like growth factor 2 mRNA-binding protein family. The protein encoded by this gene contains four K homology domains and two RNA recognition motifs. It functions by binding to the mRNAs of certain genes, including insulin-like growth factor 2, beta-actin and beta-transducin repeat-containing protein, and regulating their translation. Two transcript variants encoding different isoforms have been found for this gene.

References

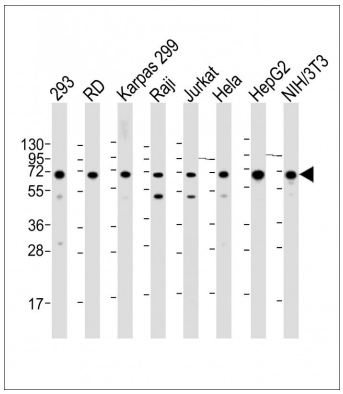
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Zhou, Y., et al. Virology 393(2):210-220(2009)
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Images

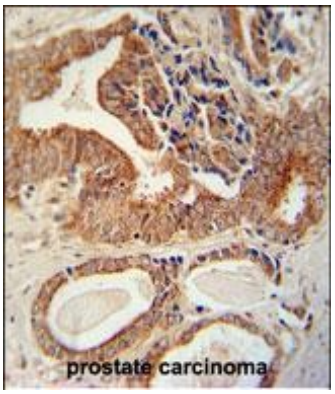
Overlay histogram showing HepG2 cells stained with AP10466b (green line). The cells were fixed with 2% paraformaldehyde (10 min) and then permeabilized with 90% methanol for 10 min. The cells were then icubated in 2% bovine serum albumin to block non-specific protein-protein interactions followed by the antibody (AP10466b, 1:25 dilution) for 60 min at 37ºC. The



secondary antibody used was Goat-Anti-Rabbit IgG, DyLight® 488 Conjugated Highly Cross-Adsorbed(OH191631) at 1/200 dilution for 40 min at 37°C. Isotype control antibody (blue line) was rabbit IgG (1µg/1x10^6 cells) used under the same conditions. Acquisition of >10, 000 events was performed.



All lanes : Anti-IGF2BP1 Antibody (C-term) at 1:2000 dilution Lane 1: 293 whole cell lysate Lane 2: RD whole cell lysate Lane 3: Karpas 299 whole cell lysate Lane 4: Raji whole cell lysate Lane 5: Jurkat whole cell lysate Lane 6: Hela whole cell lysate Lane 7: HepG2 whole cell lysate Lane 8: NIH/3T3 whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 63 kDa Blocking/Dilution buffer: 5% NFDM/TBST.



IGF2BP1 antibody (C-term) (Cat. #AP10466b) immunohistochemistry analysis in formalin fixed and paraffin embedded human prostate carcinoma followed by peroxidase conjugation of the secondary antibody and DAB staining. This data demonstrates the use of the IGF2BP1 antibody (C-term) for immunohistochemistry. Clinical relevance has not been evaluated.

Citations

- Quantitative Analysis of Differential Proteome Expression in Bladder Cancer vs. Normal Bladder Cells Using SILAC Method.
- Mumps Virus Induces Protein-Kinase-R-Dependent Stress Granules, Partly Suppressing Type III Interferon Production.

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