abcam

ab10739

Anti-Interferon alpha/beta receptor 1 antibody - BSA and Azide free

Key facts

Isotype	IgG
Host species	Goat
Storage buffer	Constituents: PBS
Form	Liquid
Clonality	Polyclonal
Immunogen	Recombinant Full Length Protein corresponding to Human IFNAR1. Database link P17181
Carrier free	Yes
Purification technique	Affinity purification Immunogen
Specificity	Based on ELISA and immunoblotting, this antibody shows no cross-reactivity with recombinant human IFNGRI and IFNGRII.
Concentration	0.1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Affinity isolated antigen specific antibody is obtained from goat anti-Interferon alpha/beta receptor 1 antiserum by immuno-specific purification which removes essentially all goat serum proteins, including immunoglobulins, which do not specifically bind to the peptide.

Reactivity data

Flow Cyt

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

ELISA

Expected

Species	Human
Dilution info	-
Notes	The detection limit for recombinant human IFNAR1 is approximately 0.3 ng/well.

WB

Expected

Species	Human
Dilution info	-
Notes	The detection limit for recombinant human IFN-u/B R1 is ~25 ng/lane and 5 ng/lane under non-reducing and reducing conditions, respectively.

Target data

See full target information IFNAR1

Function

Together with IFNAR2, forms the heterodimeric receptor for type I interferons (including interferons alpha, beta, epsilon, omega and kappa) (PubMed:10049744, PubMed:14532120, PubMed:15337770, PubMed:2153461, PubMed:21854986, PubMed:24075985, PubMed:31270247, PubMed:33252644, PubMed:35442418, PubMed:7813427). Type I interferon binding activates the JAK-STAT signaling cascade, resulting in transcriptional activation or repression of interferon-regulated genes that encode the effectors of the interferon response (PubMed:10049744, PubMed:21854986, PubMed:7665574). Mechanistically, type I interferon-binding brings the IFNAR1 and IFNAR2 subunits into close proximity with one another, driving their associated Janus kinases (JAKs) (TYK2 bound to IFNAR1 and JAK1 bound to IFNAR2) to cross-phosphorylate one another (PubMed:21854986, PubMed:32972995, PubMed:7665574, PubMed:7813427). The activated kinases phosphorylate specific tyrosine residues on the intracellular domains of IFNAR1 and IFNAR2, forming docking sites for the STAT transcription factors (PubMed:21854986, PubMed:32972995, PubMed:7526154, PubMed:7665574, PubMed:7813427). STAT proteins are then phosphorylated by the JAKs, promoting their translocation into the nucleus to regulate expression of interferon-regulated genes (PubMed:19561067, PubMed:21854986,

PubMed:32972995, PubMed:7665574, PubMed:7813427, PubMed:9121453). Can also act independently of IFNAR2: form an active IFNB1 receptor by itself and activate a signaling cascade that does not involve activation of the JAK-STAT pathway (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Endotoxin level is < 10 ng/mg antibody as determined by the LAL (Limulus amebocyte lysate) method. This antibody was used as a detection antibody in sELISA and was paired with ab91466 as capture antibody. Abreview 24657. IFNAR1 is a member of the cytokine receptor superfamily which also includes receptors for interleukins, IFN gamma, ciliary neurotrophic factor, somatotrophin, erythropoietin, nerve growth factor, tumor necrosis factor, leukemia inhibitory factor, and oncostatin M. Some members of the family have an alpha chain with either low or high ligand binding affinity and at least one beta chain involved in signal transduction with either relatively low or no ligand binding affinity. Type I interferons, alpha and beta, induce a variety of effects on target cells including antiviral, antiproliferative, and immunomodulatory activities. The alpha and beta interferons compete to bind to a common cell surface receptor, while IFN gamma binds to a distinct receptor. IFNAR1 is very responsive to type I interferons and bind to IFN beta and IFN alpha subtypes. It is also functionally involved in signal transduction because of its association with the cytoplasmic tyrosine kinase JAK1. The type I interferons, alpha and beta, are produced by leukocytes (alpha subunits), fibroblasts (beta subtypes), lymphocytes (omega subtypes), and ruminant embryos (tau subtypes). Interferon receptors are generally found on most human cell types whatever their origin, even on cells poorly responsive to interferon. IFNAR1 is expressed on the cell surface in a variety of human cell lines.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Interferon alpha/beta receptor 1 also known as IFNAR1 is an important component of the interferon receptor complex which includes the interferon beta receptor (IFNBR) and the broader class of interferon receptors. IFNAR1 is a transmembrane protein with a molecular mass of approximately 100 kDa. It shows expression in various tissues but predominantly in cells of the immune system. This expression pattern enables IFNAR1 to play a central role in mediating responses to interferon alpha and beta which are cytokines important in the immune response.

Biological function summary	IFNAR1 partners with interferon alpha receptor 2 (IFNAR2) to form a functional receptor complex. This complex binds interferons alpha and beta triggering signal transduction cascades vital for antiviral defense. Through this interaction IFNAR1 facilitates cellular immune responses including the activation of antiviral genes and modulation of cell proliferation. IFNAR1's role extends beyond immediate immune response influencing processes like cell differentiation and apoptosis.
Pathways	IFNAR1 is a participant in the JAK-STAT signaling pathway a significant pathway for transmitting cytokine signals. Upon interferon binding it activates the associated Janus kinases (JAKs) which in turn phosphorylate signal transducers and activators of transcription (STATs) specifically STAT1 and STAT2. This chain of events results in the transcription of interferon-stimulated genes that provide antiviral defenses and promote immune regulation. IFNAR1's engagement in these pathways makes it an integral part of immune system communication.
Associated diseases and disorders	IFNAR1 associates strongly with autoimmune diseases and viral infections. In lupus an autoimmune disorder dysregulation in interferon signaling involving IFNAR1 contributes to disease progression. Moreover in viral infections like hepatitis C the response of IFNAR1 to interferon therapies can influence treatment outcomes. Understanding these connections facilitates therapeutic strategies that target interferon pathways for improved disease management.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

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