abcam

ab203037

Anti-Insulin Receptor alpha antibody

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.4 Preservative: 0.02% Proclin 300 Constituents: 50% Glycerol (glycerin, glycerine), 48.98% TBS, 1X, 1% BSA
Form	Liquid
Clonality	Polyclonal
Immunogen	Synthetic Peptide within Human Insulin receptor aa 700-750 conjugated to Keyhole Limpet Haemocyanin. The exact immunogen used to generate this antibody is proprietary information. Database link P06213
Purification technique	Affinity purification Protein A
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Rat
Dilution info	1/50 - 1/200
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Expected

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

Predicted

Species	Mouse
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/300 - 1/1000
Notes	-

Expected

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

Predicted

Species	Mouse
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-

Notes	-

Expected

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

Predicted

Species	Mouse
Dilution info	-
Notes	-

Target data

See full target information Insulin receptor

Function

Receptor tyrosine kinase which mediates the pleiotropic actions of insulin. Binding of insulin leads to phosphorylation of several intracellular substrates, including, insulin receptor substrates (IRS1, 2, 3, 4), SHC, GAB1, CBL and other signaling intermediates. Each of these phosphorylated proteins serve as docking proteins for other signaling proteins that contain Src-homology-2 domains (SH2 domain) that specifically recognize different phosphotyrosine residues, including the p85 regulatory subunit of PI3K and SHP2. Phosphorylation of IRSs proteins lead to the activation of two main signaling pathways: the PI3K-AKT/PKB pathway, which is responsible for most of the metabolic actions of insulin, and the Ras-MAPK pathway, which regulates expression of some genes and cooperates with the PI3K pathway to control cell growth and differentiation. Binding of the SH2 domains of PI3K to phosphotyrosines on IRS1 leads to the activation of PI3K and the generation of phosphatidylinositol-(3, 4, 5)-triphosphate (PIP3), a lipid second messenger, which activates several PIP3-dependent serine/threonine kinases, such as PDPK1 and subsequently AKT/PKB. The net effect of this pathway is to produce a translocation of the glucose transporter SLC2A4/GLUT4 from cytoplasmic vesicles to the cell membrane to facilitate glucose transport. Moreover, upon insulin stimulation, activated AKT/PKB is responsible for: anti-apoptotic effect of insulin by inducing phosphorylation of BAD; regulates the expression of gluconeogenic and lipogenic enzymes by controlling the activity of the winged helix or forkhead (FOX) class of transcription factors. Another pathway regulated by PI3K-AKT/PKB activation is mTORC1 signaling pathway which regulates cell growth and metabolism and integrates signals from insulin. AKT mediates insulin-stimulated protein synthesis by phosphorylating TSC2 thereby activating mTORC1 pathway. The Ras/RAF/MAP2K/MAPK pathway is mainly involved in mediating cell growth, survival and cellular differentiation of insulin. Phosphorylated IRS1 recruits GRB2/SOS complex, which triggers the activation of the Ras/RAF/MAP2K/MAPK

pathway. In addition to binding insulin, the insulin receptor can bind insulin-like growth factors (IGFI and IGFII). Isoform Short has a higher affinity for IGFII binding. When present in a hybrid receptor with IGF1R, binds IGF1. PubMed:12138094 shows that hybrid receptors composed of IGF1R and INSR isoform Long are activated with a high affinity by IGF1, with low affinity by IGF2 and not significantly activated by insulin, and that hybrid receptors composed of IGF1R and INSR isoform Short are activated by IGF1, IGF2 and insulin. In contrast, PubMed:16831875 shows that hybrid receptors composed of IGF1R and INSR isoform Long and hybrid receptors composed of IGF1R and INSR isoform Short have similar binding characteristics, both bind IGF1 and have a low affinity for insulin. In adipocytes, inhibits lipolysis (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
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

Supplementary info

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

Activity summary	The Insulin Receptor alpha (INSTA) sometimes called Insulin Receptor Subunit alpha is an integral component of the insulin receptor complex. It is an important site for insulin binding and exhibits a molecular weight (MW) of approximately 157 kDa. The receptor commonly distributes on the surface of cells with high expression in muscle cells liver cells and adipose tissue. Insulin receptor antibodies can target this protein for various studies including Western blot analyses. The protein structure itself comprises two alpha subunits alongside two beta subunits which together facilitate insulin's physiological effects.
Biological function summary	INSTA plays a critical role in glucose uptake and regulation of energy metabolism. It is an extracellular receptor involved in the formation of a tetrameric complex when interacting with insulin triggering downstream signaling cascades. The receptor helps mediate processes including glycogen synthesis lipid metabolism and protein synthesis through its influence on glucose transport and metabolic enzyme activity. The interaction with insulin generates a conformational change in the receptor which propagates cellular signal transduction essential for metabolic homeostasis.

Pathways	INSTA forms part of the insulin signaling pathway and the PI3K/Akt pathway. These pathways are essential for cellular glucose uptake and ensure energy balance within the body. Insulin receptor interacts with proteins like IRS-1 and PI3K which play roles in mediating insulin's effects. As part of these pathways INSTA assists in the convergence of signals that regulate anabolic and catabolic processes within cells making it integral to maintaining normal metabolic functions.
Associated diseases and disorders	INSTA holds a significant connection to conditions such as type 2 diabetes mellitus and insulin resistance. Both linked to misregulation or dysregulation of insulin receptor functions these disorders underline the importance of the insulin receptor in maintaining glucose homeostasis within the body. Moreover INSTA's association with other proteins such as IRS-1 becomes particularly apparent in these disease states as malfunctioning of these proteins can impair the insulin signaling cascade exacerbating metabolic syndrome. Understanding INSTA's role provides insight into therapeutic targets for managing these related conditions.

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

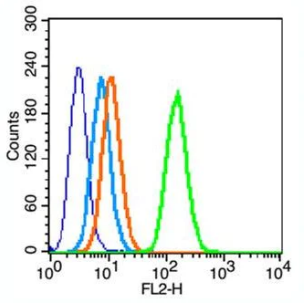
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

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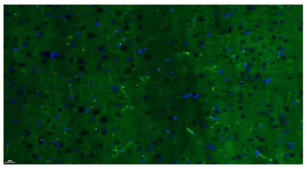
5 product images



Flow Cytometry (Intracellular) - Anti-Insulin Receptor alpha antibody (ab203037)

Insulin Receptor alpha Flow Cytometry (Intracellular) staining using rabbit Anti-Insulin Receptor alpha antibody

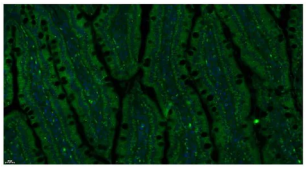
Intracellular flow cytometric analysis of HL-60 cells labelleing insulin receptor alpha with ab203037 at 1/100 dilution (green), compared to control cells (blue) and isotype control (orange).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Insulin Receptor alpha antibody (ab203037)

Insulin Receptor alpha Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Insulin Receptor alpha antibody

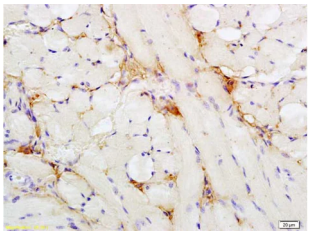
Immunohistochemical analysis of formalin-fixed, paraffin-embedded rat small brain tissue labeling Insulin Receptor alpha with ab203037 at 1/200 dilution, followed by conjugated Goat Anti-Rabbit IgG secondary antibody. DAPI was used as nuclear counterstain. Heat mediated antigen retrieval with sodium citrate buffer, pH 6 was performed for 15 minutes.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Insulin Receptor alpha antibody (ab203037)

Insulin Receptor alpha Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Insulin Receptor alpha antibody

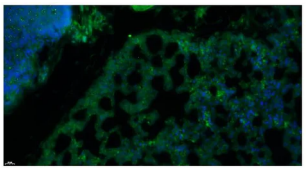
Immunohistochemical analysis of formalin-fixed, paraffin-embedded rat small intestine tissue labeling Insulin Receptor alpha with ab203037 at 1/200 dilution, followed by conjugated Goat Anti-Rabbit IgG secondary antibody. DAPI was used as nuclear counterstain. Heat mediated antigen retrieval with sodium citrate buffer, pH 6 was performed for 15 minutes.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Insulin Receptor alpha antibody (ab203037)

Insulin Receptor alpha Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Insulin Receptor alpha antibody

Immunohistochemical analysis of formalin-fixed, paraffin-embedded rat tongue tissue labeling Insulin Receptor with ab203037 at 1/200 dilution, followed by secondary antibody detection and DAB staining.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Insulin Receptor alpha antibody (ab203037)

Immunohistochemical analysis of formalin-fixed, paraffin-embedded rat lung tissue labeling Insulin Receptor alpha with ab203037 at 1/200 dilution, followed by conjugated Goat Anti-Rabbit IgG secondary antibody. DAPI was used as nuclear counterstain. Heat mediated antigen retrieval with sodium citrate buffer, pH 6 was performed for 15 minutes.

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