10320 Camino Santa Fe, Suite G
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# KD-Validated Anti-Insulin receptor Rabbit Monoclonal Antibody

**Rabbit monoclonal antibody**
**Catalog # AGI1039**

## Specification

### KD-Validated Anti-Insulin receptor Rabbit Monoclonal Antibody - Product Information

| | |
|---|---|
| Application | **WB, FC, ICC** |
| Primary Accession | P06213 |
| Reactivity | **Rat, Human, Mouse** |
| Clonality | **Monoclonal** |
| Isotype | **Rabbit IgG** |
| Calculated MW | **Predicted, 156 kDa , observed, 95 kDa KDa** |
| Gene Name | **INSR** |
| Aliases | **INSR; Insulin Receptor; CD220; EC 2.7.10.1; IR; CD220 Antigen; EC 2.7.10; HHF5** |
| Immunogen | **A synthesized peptide derived from human Insulin Receptor** |

### KD-Validated Anti-Insulin receptor Rabbit Monoclonal Antibody - Additional Information

Gene ID **3643**

**Other Names**
Insulin receptor, IR, 2.7.10.1, CD220, Insulin receptor subunit alpha, Insulin receptor subunit beta, INSR

### KD-Validated Anti-Insulin receptor Rabbit Monoclonal Antibody - Protein Information

**Name** INSR

**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:<a href="http://www.uniprot.org/citations/12138094" target="_blank">12138094</a> 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:<a href="http://www.uniprot.org/citations/16831875" target="_blank">16831875</a> 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).

### Cellular Location
Cell membrane {ECO:0000250|UniProtKB:P15208}; Single-pass type I membrane protein. Late endosome {ECO:0000250|UniProtKB:P15208}. Lysosome {ECO:0000250|UniProtKB:P15208}. Note=Binding of insulin to INSR induces internalization and lysosomal degradation of the receptor, a means for down-regulating this signaling pathway after stimulation. In the presence of SORL1, internalized INSR molecules are redirected back to the cell surface, thereby preventing their lysosomal catabolism and strengthening insulin signal reception. {ECO:0000250|UniProtKB:P15208}

### Tissue Location
Isoform Long and isoform Short are predominantly expressed in tissue targets of insulin metabolic effects: liver, adipose tissue and skeletal muscle but are also expressed in the peripheral nerve, kidney, pulmonary alveoli, pancreatic acini, placenta vascular endothelium, fibroblasts, monocytes, granulocytes, erythrocytes and skin. Isoform Short is preferentially expressed in fetal cells such as fetal fibroblasts, muscle, liver and kidney. Found as a hybrid receptor with IGF1R in muscle, heart, kidney, adipose tissue, skeletal muscle, hepatoma, fibroblasts, spleen and placenta (at protein level). Overexpressed in several tumors, including breast, colon, lung, ovary, and thyroid carcinomas

## KD-Validated Anti-Insulin receptor Rabbit Monoclonal Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

## KD-Validated Anti-Insulin receptor Rabbit Monoclonal Antibody - Images

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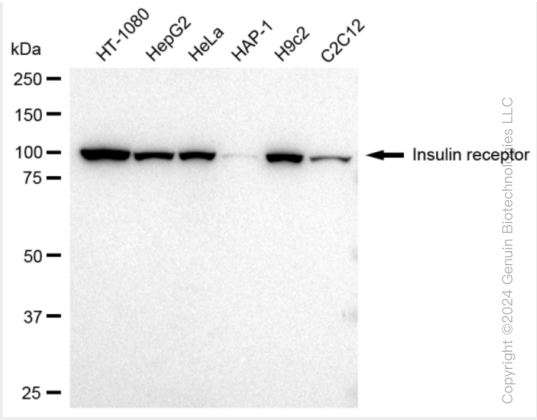
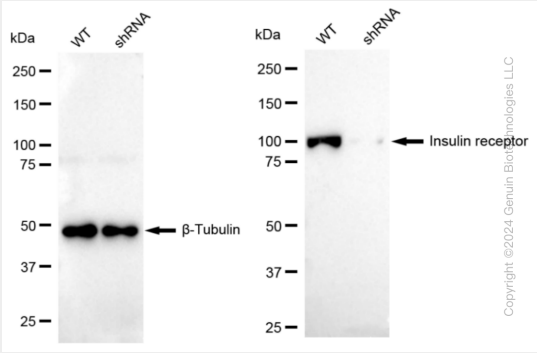
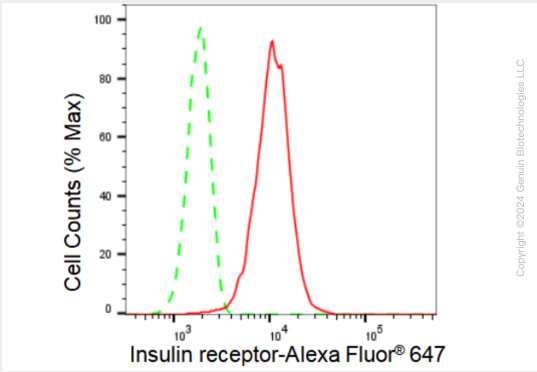


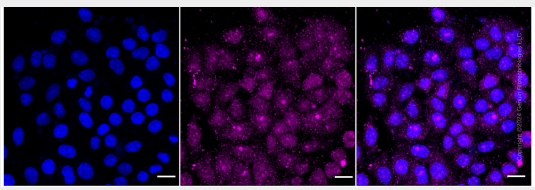

Western blotting analysis using anti-Insulin receptor antibody (Cat#AGI1039). Total cell lysates (30 µg) from various cell lines were loaded and separated by SDS-PAGE. The blot was incubated with anti-Insulin receptor antibody (Cat#AGI1039, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.




Western blotting analysis using anti-Insulin receptor antibody (Cat#AGI1039). Insulin receptor expression in wild type (WT) and insulin receptor shRNA knockdown (KD) HeLa cells with 30 µg of total cell lysates. β-Tubulin serves as a loading control. The blot was incubated with anti-Insulin receptor antibody (Cat#AGI1039, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.




Flow cytometric analysis of Insulin receptor expression in HT-1080 cells using Insulin receptor antibody (Cat#AGI1039, 1:2,000). Green, isotype control; red, Insulin receptor.



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Immunocytochemical staining of HepG2 cells with anti-insulin receptor antibody (Cat#AGI1039, 1:1,000). Nuclei were stained blue with DAPI; Insulin receptor was stained magenta with Alexa Fluor® 647. Images were taken using Leica stellaris 5. Protein abundance based on laser Intensity and smart gain: Medium. Scale bar: 20 µm.