Phospho-Receptor Sampler Kit

E051033

Kits Includes	Cat.	Quantity	Application	Reactivity	Source
EGFR (Phospho-Tyr1092) Antibody	E011081-1	50μg/50μl	IHC, WB	Human, Mouse, Rat	Rabbit
Estrogen Receptor-α (Phospho-Ser106) Antibody	E011071-1	50μg/50μl	IHC, WB, IF	Human, Mouse,	Rabbit
HER2 (Phospho-Tyr877) Antibody	E011075-1	50μg/50μl	IHC, WB, IF	Human, Mouse, Rat	Rabbit
IGF-1R (Phospho-Tyr1161) Antibody	E011087-1	50μg/50μl	IHC, WB, IF	Human, Mouse, Rat	Rabbit
VEGFR2 (Phospho-Tyr951) Antibody	E011086-1	50μg/50μl	IHC, WB, IF	Human, Mouse, Rat	Rabbit

EGFR is a cell surface protein that binds to epidermal growth factor. Binding of the protein to a ligand induces receptor dimerization and tyrosine autophosphorylation and leads to cell proliferation. Mutations in this gene are associated with lung cancer. Receptor for EGF, but also for other members of the EGF family, as TGF-alpha, amphiregulin, betacellulin, heparin-binding EGF-like growth factor, GP30 and vaccinia virus growth factor. Is involved in the control of cell growth and differentiation. Phosphorylates MUC1 in breast cancer cells and increases the interaction of MUC1 with SRC and CTNNB1/beta-catenin. Isoform 2 may act as an antagonist of EGF action. The epidermal growth factor receptor (EGFR) is a receptor tyrosine kinase of the ErbB family. Four members of the ErbB family have been identified; EGFR (ErbB1, HER1), ErbB2 (HER2), ErbB3 (HER3) and ErbB4 (HER4). EGFR signaling is initiated by ligand binding to the extracellular ligand binding domain. This initiates receptor homo-/hetero-dimerization and autophosphorylation by the intracellular kinase domain, resulting in receptor activation. Following activation, phosphorylation of cytoplasmic substrates occurs and a signaling cascade is initiated that drives many cellular responses, including changes in gene expression, cytoskeletal rearrangement, anti-apoptosis and increased cell proliferation.

ESR1 gene encodes an **estrogen receptor**, a ligand-activated transcription factor composed of several domains important for hormone binding, DNA binding, and activation of transcription. The protein localizes to the nucleus where it may form a homodimer or a heterodimer with **estrogen receptor** 2. **Estrogen** and its **receptor**s are essential for sexual development and reproductive function, but also play a role in other tissues such as bone. **Estrogen receptor**s are also involved in pathological processes including breast cancer, endometrial cancer, and osteoporosis. Alternative splicing results in several transcript variants, which differ in their 5' UTRs and use different promoters. Nuclear hormone **receptor**. The steroid hormones and their **receptor**s are involved in the regulation of eukaryotic gene expression and affect cellular proliferation and differentiation in target tissues.

Estrogen controls many cellular processes including growth, differentiation and function of the reproductive system. In females, estrogen's main targets are the ovaries, uterus, vagina and mammary glands. In the male, target organs are the testes, prostate and epididymis. Estrogen is also responsible for the growth and maintenance of the skeleton and the normal functioning of the cardiovascular and nervous systems. Estrogen exerts most of its actions via estrogen receptors (ER). Estrogen receptors are ligand-activated transcription factors belonging to the nuclear hormone receptor superfamily. Phosphorylated by cyclin A/CDK2. Phosphorylation probably enhances transcriptional activity.

ERBB2 gene encodes a member of the epidermal growth factor (EGF) receptor family of receptor tyrosine kinases. This protein has no ligand binding domain of its own and therefore cannot bind growth factors. However, it does bind tightly to other ligand-bound EGF receptor family members to form a heterodimer, stabilizing ligand binding and enhancing kinase-mediated activation of downstream signalling pathways, such as those involving mitogen-activated protein kinase and phosphatidylinositol-3 kinase. Allelic variations at amino acid positions 654 and 655 of isoform a (positions 624 and 625 of isoform b) have been reported, with the most common allele, Ile654/Ile655, shown here. Amplification and/or overexpression of this gene has been reported in numerous cancers, including breast and ovarian tumors. Alternative splicing results in several additional transcript variants, some encoding different isoforms and others that have not been fully characterized. Essential component of a neuregulin-receptor complex, although neuregulins do not interact with it alone. GP30 is a potential ligand for this receptor. Not activated by EGF, TGF-alpha and amphiregulin.

The epidermal growth factor receptor (EGFR) is a receptor tyrosine kinase of the ErbB family. Four members of the ErbB family have been identified; EGFR (ErbB1, HER1), ErbB2 (HER2), ErbB3 (HER3) and ErbB4 (HER4). EGFR signaling is initiated by ligand binding to the extracellular ligand binding domain. This initiates receptor homo-/hetero-dimerization and autophosphorylation by the intracellular kinase domain, resulting in receptor activation. Following activation, phosphorylation of cytoplasmic substrates occurs and a signaling cascade is initiated that drives many cellular responses, including changes in gene expression, cytoskeletal rearrangement, anti-apoptosis and increased cell proliferation.

IGF1R receptor binds insulin-like growth factor with a high affinity. It has tyrosine kinase activity. The insulin-like growth factor I receptor plays a critical role in transformation events. Cleavage of the precursor generates alpha and beta subunits. It is highly overexpressed in most malignant tissues where it functions as an anti-apoptotic agent by enhancing cell survival. This receptor binds insulin-like growth factor 1 (**IGF**1) with a high affinity and **IGF**2 with a lower affinity. It has a tyrosine-protein kinase activity, which is necessary for the activation of the **IGF**1-stimulated downstream signaling cascade. When present in a hybrid receptor with INSR, binds **IGF**1. PubMed:12138094 shows that hybrid receptors composed of **IGF**1R and INSR isoform Long are activated with a high affinity by

IGF1, with low affinity by **IGF**2 and not significantly activated by insulin, and that hybrid receptors composed of **IGF**1R and INSR isoform Short are activated by **IGF**1, **IGF**2 and insulin. In contrast, PubMed:16831875 shows that hybrid receptors composed of **IGF**1R and INSR isoform Long and hybrid receptors composed of **IGF**1R and INSR isoform Short have similar binding characteristics, both bind **IGF**1 and have a low affinity for insulin.

Insulin receptors (IRs) and insulin-like growth factor receptors (IGFRs) are formed from two subunits, each of which is comprised of an extracellular alpha-subunit and a transmembrane beta-subunit with intracellular tyrosine kinase activity. IR homodimers are activated by insulin and in adults, mediate an increase in glucose uptake through upregulation of Glut4 expression. Two isoforms of the IR exist; fetal IR-A and adult IR-B. IGF1R homodimers are activated by IGF-I and IGF-II and mediate pre- and postnatal growth. IGF2R sequesters IGF-II and acts to regulate its levels. IR-IGF1R heterodimers exist and, like IGF1R homodimers, are activated by IGF-I and IGF-II. IRs and IGFRs mediate their intracellular actions through the PI 3-K and RAS/RAF/MAPK signaling pathways and downstream effectors include mTOR, p70 S6 kinase, ERK and JNK. Many tumors have altered expression of IGF1R and its ligands and this constitutes an early, possible initiating, event in tumorigenesis. Decreases in IR signaling causing insulin resistance is a major component in the development of type 2 diabetes and congenital mutations in the IR can cause the fatal Donohue syndrome. The cytoplasmic domain of the beta subunit is autophosphorylated on tyrosine residues in response to insulin-like growth factor I (IGF I). Phosphorylation of Tyr-980 is required for IRS1- and SHC1-binding.

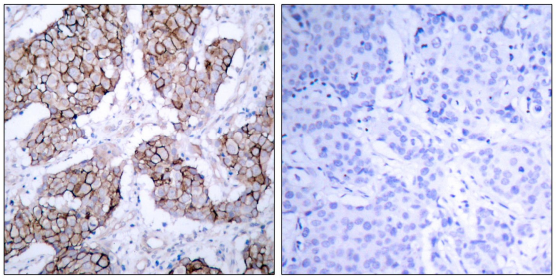
Vascular endothelial growth factor (VEGF) is a major growth factor for endothelial cells. This gene encodes one of the two receptors of the VEGF. This receptor, known as kinase insert domain receptor, is a type III receptor tyrosine kinase. It functions as the main mediator of VEGF-induced endothelial proliferation, survival, migration, tubular morphogenesis and sprouting. The signalling and trafficking of this receptor are regulated by multiple factors, including Rab GTPase, P2Y purine nucleotide receptor, integrin alphaVbeta3, T-cell protein tyrosine phosphatase, etc.. Mutations of this gene are implicated in infantile capillary hemangiomas. Receptor for VEGF or VEGFC. Has a tyrosine-protein kinase activity. The VEGF-kinase ligand/receptor signaling system plays a key role in vascular development and regulation of vascular permeability. In case of HIV-1 infection, the interaction with extracellular viral Tat protein seems to enhance angiogenesis in Kaposi's sarcoma lesions.

Vascular endothelial growth factor is a signaling protein involved in the regulation of angiogenesis and vasculogenesis. VEGF binds to and activates a receptor tyrosine kinase, VEGFR. Three VEGFR isoforms have been identified in humans; VEGFR-1 (Flt-1), VEGFR-2 (KDR/Flk-1) and VEGFR-3 (Flt-4). VEGFR-2 mediates the majority of cellular responses to VEGF. VEGFR-1 is thought to modulate VEGFR-2 signaling or to act as a dummy/decoy receptor to sequester VEGF away from VEGFR-2.

EGFR (Phospho-Tyr1092) Antibody

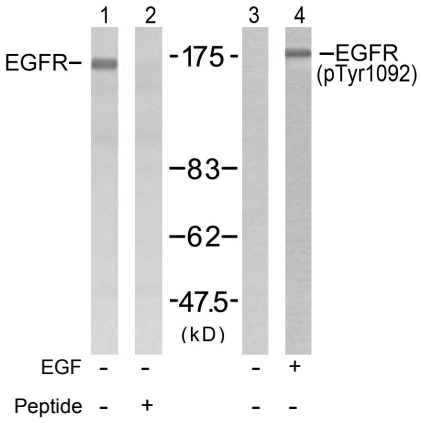
E011081

Catalog Number: E011081-1, E011081-2
Amount: 50μg/50μl, 100μg/100μl
Form of Antibody: Rabbit IgG in phosphate buffered saline (without Mg^{2+} and Ca^{2+}), pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Storage/Stability: Store at -20°C/1 year
Immunogen: The antiserum was produced against synthesized phosphopeptide derived from human EGFR around the phosphorylation site of tyrosine1092 (P-E-Y^{P}-I-N).
Purification: The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific phosphopeptide. The antibody against non-phosphopeptide was removed by chromatogramphy using non-phosphopeptide corresponding to the phosphorylation site.
Specificity/Sensitivity: EGFR (phospho-tyr1092) antibody detects endogenous levels of EGFR only when phosphorylated at tyrosine 1092.
Reactivity: Human, Mouse, Rat
Applications: WB: 1:500~1:1000 IHC: 1:50~1:100
Swiss-Prot No. : P00533
References:
Buerger C, et al. (2003) J Biol Chem; 278(39): 37610-21.
Wang XQ, (2003) J Biol Chem; 278(49): 48770-8.
Saito T, et al. (2004) Endocrinology; 145(9): 4232-43.
Pao W, et al. (2004) Proc Natl Acad Sci U S A; 101(36): 13306-11.



P-Peptide - +

Immunohistochemical analysis of paraffin- embedded human breast carcinoma tissue using EGFR (phospho-Tyr1092) antibody (E011081).

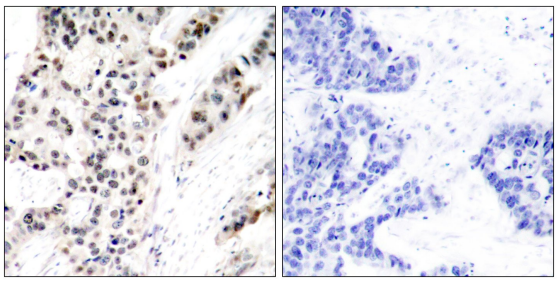


Western blot analysis of extracts from HUVEC cells using EGFR (Ab-1092) antibody (E021074, Lane 1 and 2) and EGFR (phospho-Tyr1092) antibody (E011081, Lane 3 and 4).

Estrogen Receptor-α (Phospho-Ser106) Antibody

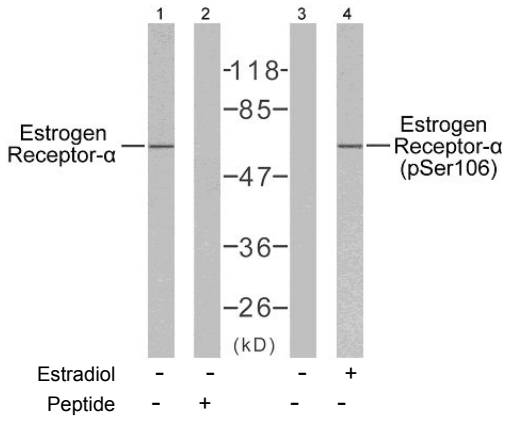
E011071

Catalog Number: E011071-1, E011071-2
Amount: 50μg/50μl, 100μg/100μl
Form of Antibody: Rabbit IgG in phosphate buffered saline (without Mg^{2+} and Ca^{2+}), pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Storage/Stability: Store at -20°C/1 year
Immunogen: The antiserum was produced against synthesized phosphopeptide derived from human Estrogen Receptor-α around the phosphorylation site of serine106 (S-P- S^{P}-P-L).
Purification: The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific phosphopeptide. The antibody against non-phosphopeptide was removed by chromatogramphy using non-phosphopeptide corresponding to the phosphorylation site.
Specificity/Sensitivity: Estrogen Receptor-α (phospho-Ser106) antibody detects endogenous levels of Estrogen Receptor-α only when phosphorylated at serine 106.
Reactivity: Human, Mouse
Applications: WB: 1:500~1:1000 IHC: 1:50~1:100 IF:1:100~1:200
Swiss-Prot No. : P03372
References: Medunjanin S, et al. (2005). J Biol Chem.80 (38):33006-33014.
Dutertre M, et al. (2003). Mol Endocrinol.17 (7): 1296-1314.
Chen D, et al. (2000). Mol Cell.6 (1): 127-137.



P-Peptide - +

Immunohistochemical analysis of paraffin- embedded human breast carcinoma tissue using Estrogen Receptor-α (phospho-Ser106) antibody (E011071).

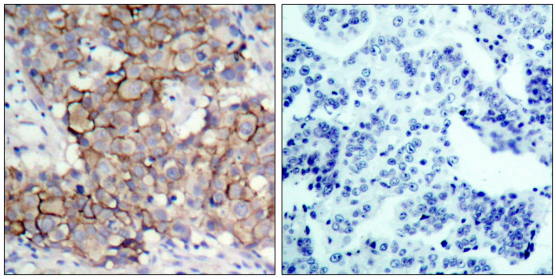


Western blot analysis of extracts from MCF7 cells, using Estrogen Receptor-α (Ab-106) antibody (E021066) and Estrogen Receptor-α (phospho-Ser106) antibody (E011071).

HER2 (Phospho-Tyr877) Antibody

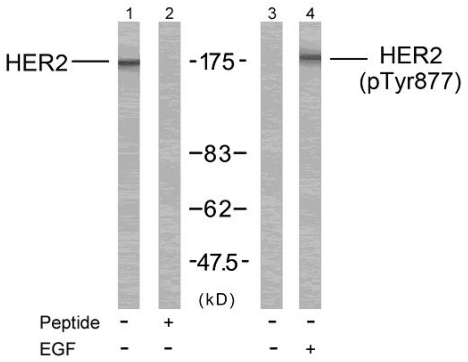
E011075

Catalog Number: E011075-1, E011075-2
Amount: 50μg/50μl, 100μg/100μl
Form of Antibody: Rabbit IgG in phosphate buffered saline (without Mg^{2+} and Ca^{2+}), pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Storage/Stability: Store at -20°C/1 year
Immunogen: The antiserum was produced against synthesized phosphopeptide derived from human HER2 around the phosphorylation site of tyrosine 877 (T-E-Y^P-H-A).
Purification: The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific phosphopeptide. The antibody against non-phosphopeptide was removed by chromatogramphy using non-phosphopeptide corresponding to the phosphorrylation site.
Specificity/Sensitivity: HER2 (phospho-Tyr877) antibody detects endogenous levels of HER2 only when phosphorylated at tyrosine 877.
Reactivity: Human, Mouse, Rat
Applications: WB: 1:500~1:1000 IHC: 1:50~1:100 IF:1:100~1:200
Swiss-Prot No. : P04626
References: Dittadi, R. et al. (2000) J. Natl. Cancer Inst. 92, 1443-1444.
Muthuswamy, S. K. et al. (1999) Mol. Cell. Biol. 19, 6845-6857.
Qian, X. et al. (1994) Proc. Natl. Acad. Sci. USA 91, 1500-1504.



P-Peptide - +

Immunohistochemical analysis of paraffin-embedded human breast carcinoma tissue, using HER2 (phospho-Tyr877) antibody (E011075).

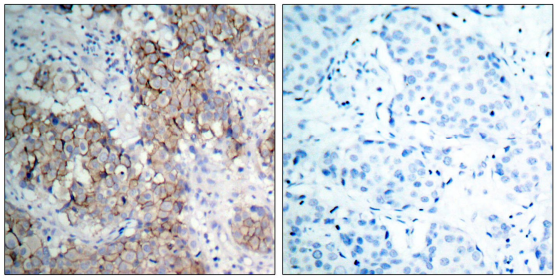


Western blot analysis of extract from MDA-MB-231 cells treated or untreated with EGF using HER2 (Ab-877) Antibody (E021070, Line 1 and 2) and HER2 (phospho-Tyr877) antibody (E011075, Line 3 and 4).

IGF-1R (Phospho-Tyr1161) Antibody

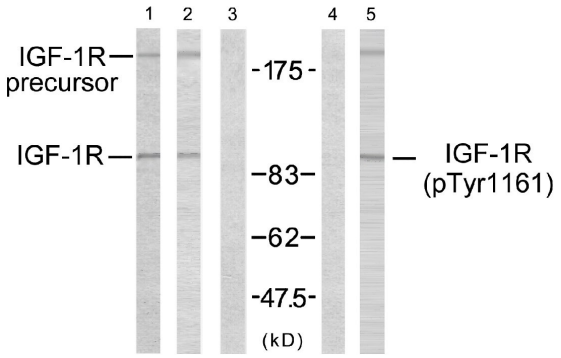
E011087

Catalog Number: E011087-1, E011087-2
Amount: 50μg/50μl, 100μg/100μl
Form of Antibody: Rabbit IgG in phosphate buffered saline (without Mg^{2+} and Ca^{2+}), pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Storage/Stability: Store at -20°C/1 year
Immunogen: The antiserum was produced against synthesized phosphopeptide derived from human IGF-1R around the phosphorylation site of tyrosine 1161 (D-I-Y^P-E-T).
Purification: The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific phosphopeptide. The antibody against non-phosphopeptide was removed by chromatogramphy using non-phosphopeptide corresponding to the phosphorylation site.
Specificity/Sensitivity: IGF-1R (phospho-Tyr1161) antibody detects endogenous levels of IGF-1R only when phosphorylated at tyrosine1161.
Reactivity: Human, Mouse, Rat
Applications: WB: 1:500~1:1000 IHC: 1:50~1:100 IF:1:100~1:200
Swiss-Prot No. : P08069
References: Li S, et al. (1994) J Biol Chem; 269(51).
Hernandez-Sanchez C, et al. (1995) J Biol Chem.



P-Peptide - +

Immunohistochemical analysis of paraffin- embedded human breast carcinoma tissue using IGF-1R (phospho-Tyr1161) antibody (E011087).

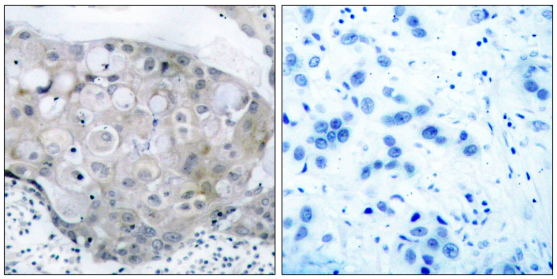


Western blot analysis using IGF-1R (Ab-1161) antibody (E021080, Line 1, 2 and 3) and IGF-1R (phospho-Tyr1161) antibody (E011087, Line 4 and 5).

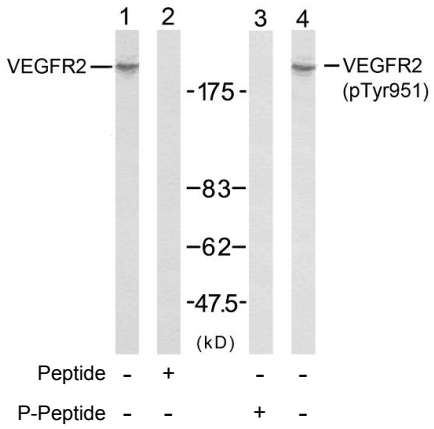
VEGFR2 (Phospho-Tyr951) Antibody

E011086

Catalog Number: E011086-1, E011086-2
Amount: 50μg/50μl, 100μg/100μl
Form of Antibody: Rabbit IgG in phosphate buffered saline (without Mg^{2+} and Ca^{2+}), pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Storage/Stability: Store at -20°C/1 year
Immunogen: The antiserum was produced against synthesized phosphopeptide derived from human VEGFR2 around the phosphorylation site of tyrosine 951 (K-D-Y^{P}-V-G).
Purification: The antibody was affinity-purified from rabbit antiserum by affinity-chromatography using epitope-specific phosphopeptide. The antibody against non-phosphopeptide was removed by chromatogramphy using non-phosphopeptide corresponding to the phosphorylation site.
Specificity/Sensitivity: VEGFR2 (phospho-Tyr951) antibody detects endogenous levels of VEGFR2 only when phosphorylated at tyrosine 951.
Reactivity: Human, Mouse, Rat
Applications: WB: 1:500~1:1000 IHC: 1:50~1:100 IF:1:100~1:200
Swiss-Prot No. : P35968
References: Zeng H, et al. (2001) J Biol Chem. 276(35): 32714-32719.
Dougher M, et al. (1999) Oncogene. 18(8): 1619-1627.



Immunohistochemical analysis of paraffin- embedded human breast carcinoma tissue using VEGFR2 (phospho-Tyr951) antibody (E011086).



Western blot analysis of extracts from SK-OV3 cells using VEGFR2 (Ab-951) antibody (E021079, Line 1 and 2) and VEGFR2 (phospho-Tyr951) antibody (E011086, Line 3 and 4).