SANTA CRUZ BIOTECHNOLOGY, INC.

p-ErbB-4 (4C6): sc-81491

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The EGF receptor family comprises several related receptor tyrosine kinases that are frequently overexpressed in a variety of carcinomas. Members of this receptor family include EGFR (HER1), Neu (ErbB-2, HER2), ErbB-3 (HER3) and ErbB-4 (HER4), which form either homodimers or heterodimers upon ligand binding. The gene encoding ErbB-4 is expressed as a full length protein, which produces a short membrane-anchored cytoplasmic domain fragment and a long ectodomain fragment. The short fragment is heavily tyrosine phosphorylated and possesses tyrosine kinase catalytic activity toward an exogenous substrate. Proteolytic cleavage of ErbB-4 is promoted by the binding of heregulin. ErbB-4 is involved in cell proliferation and differentiation and its expression is highest in breast carcinoma cell lines, normal skeletal muscle, heart, pituitary, brain and cerebellum.

REFERENCES

1. Plowman, G.D., et al. 1993. Ligand-specific activation of HER4/p180ErbB-4, a fourth member of the epidermal growth factor receptor family. Proc. Natl. Acad. Sci. USA 90: 1746-1750.
2. Zimonjic, D.B., et al. 1995. Localization of the human HER4/ErbB-4 gene to chromosome 2. Oncogene 10: 1235-1237.
3. Vecchi, M., et al. 1996. Selective cleavage of the heregulin receptor ErbB-4 by protein kinase C activation. J. Biol. Chem. 271: 18989-18995.
4. Vecchi, M., et al. 1998. Tyrosine phosphorylation and proteolysis. Pervanadate-induced, metalloprotease-dependent cleavage of the ErbB-4 receptor and Amphiregulin. J. Biol. Chem. 273: 20589-20595.
5. Srinivasan, R., et al. 1998. Expression of the c-ErbB-4/HER4 protein and mRNA in normal human fetal and adult tissues and in a survey of nine solid tumour types. J. Pathol. 185: 236-245.
6. Zhou, W., et al. 2000. Heregulin-dependent trafficking and cleavage of ErbB-4. J. Biol. Chem. 275: 34737-34743.
7. Rubin, I., et al. 2001. The basic biology of HER2. Ann. Oncol. 12: S3-S8.

CHROMOSOMAL LOCATION

Genetic locus: ERBB4 (human) mapping to 2q34; Erbb4 (mouse) mapping to 1 C3.

SOURCE

p-ErbB-4 (4C6) is a mouse monoclonal antibody raised against a phosphopeptide corresponding to amino acid residues surrounding Tyr 1242 of ErbB-4 of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin and 50% glycerol.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

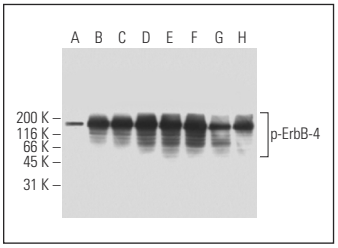
p-ErbB-4 (4C6) is recommended for detection of Tyr 1242 phosphorylated ErbB-4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for ErbB-4 siRNA (h): sc-35329, ErbB-4 siRNA (m): sc-35330, ErbB-4 shRNA Plasmid (h): sc-35329-SH, ErbB-4 shRNA Plasmid (m): sc-35330-SH, ErbB-4 shRNA (h) Lentiviral Particles: sc-35329-V and ErbB-4 shRNA (m) Lentiviral Particles: sc-35330-V.

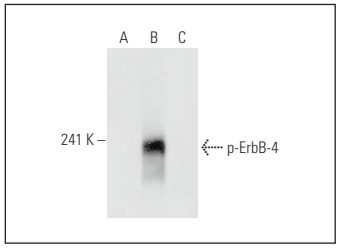
Molecular Weight of p-ErbB-4: 200 kDa.

Positive Controls: T-47D cell lysate: sc-2293, A-431 + EGF whole cell lysate: sc-2202 or MDA-MB-468 cell lysate: sc-2282.

DATA



p-ErbB-4 (4C6): sc-81491. Western blot analysis of ErbB-4 phosphorylation in serum starved MDA-MB-468 cells (**A**), and serum starved MDA-MB-468 cells incubated with 10 ng/ml EGF for 5 min (**B**), 15 min (**C**), 30 min (**D**), 1 hr (**E**), 2 hrs (**F**), 4 hrs (**G**) and 8 hrs (**H**).



p-ErbB-4 (4C6): sc-81491. Western blot analysis of ErbB-4 phosphorylation in untreated (**A**), Neuregulin-1 treated (**B**) and Neuregulin-1 and lambda protein phosphatase (sc-200312A) treated (**C**) T-47D whole cell lysates.

SELECT PRODUCT CITATIONS

1. Kiyatkin, A., et al. 2020. Kinetics of receptor tyrosine kinase activation define ERK signaling dynamics. Sci. Signal. 13: eaaz5267.
2. Tao, L., et al. 2024. Oleanonic acid ameliorates mutant Aβ precursor protein-induced oxidative stress, autophagy deficits, ferroptosis, mitochondrial damage, and ER stress *in vitro*. Biochim. Biophys. Acta Mol. Basis Dis. 1870: 167459.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.