

p-Neu (19G5): sc-81528

BACKGROUND

Neu (v-ErbB-2 erythroblastic leukemia viral oncogene homolog 2, HER-2, NGL, TKR1, c-ErbB-2) oncogene was originally cloned from a rat neuroglioblastoma. Human Neu is referred to as HER2 since the protein structure resembles human epidermal growth factor receptor (HER). ErbB-2 refers to a high level of similarity to ErbB (avian erythroblastosis oncogene B), later found to code for EGFR (HER). Tyr 1248 phosphorylated Neu localizes with Mucin4/ sialomucin complex at the apical surfaces of ductal and alveolar cells in rodent lactating gland. Phosphorylation of Neu at Tyr 1139 promotes association of GRB2 and GRB7 through a Src homology 2 (SH2) domain-dependent interaction, and contributes to the etiology of certain breast, gastric and esophageal cancers, and testicular germ cell tumors. Neu phosphorylation on Tyr 1221 and Tyr 1248 promotes association of Shc (SH2 domain-containing transforming protein 1) through an SH2 domain. Neu phosphorylation at Tyr 1196 and Tyr 1248 promotes association of Shc through a PTB (phosphotyrosine binding) domain. SH2 and PTB domains recognize tyrosine phosphorylated proteins in a sequence-specific fashion and transduce extracellular signals via subcellular targeting, directing assembly of complexes and modulating enzymatic activity.

REFERENCES

1. Akiyama, T., et al. 1991. The transforming potential of the c-ErbB-2 protein is regulated by its autophosphorylation at the carboxyl-terminal domain. *Mol. Cell. Biol.* 11: 833-842.
2. Xie, Y., et al. 1995. Tyrosine phosphorylation of Shc proteins and formation of Shc/GRB2 complex correlate to the transformation of NIH/3T3 cells mediated by the point-mutation activated Neu. *Oncogene* 10: 2409-2413.
3. Ricci, A., et al. 1995. Analysis of protein-protein interactions involved in the activation of the Shc/GRB2 pathway by the ErbB-2 kinase. *Oncogene* 11: 1519-1529.
4. Janes, P.W., et al. 1997. Structural determinants of the interaction between the ErbB-2 receptor and the Src homology 2 domain of GRB7. *J. Biol. Chem.* 272: 8490-8497.
5. Alroy, I., et al. 1999. Neu differentiation factor stimulates phosphorylation and activation of the Sp1 transcription factor. *Mol. Cell. Biol.* 19: 1961-1972.
6. Thor, A.D., et al. 2000. Activation (tyrosine phosphorylation) of ErbB-2 (HER-2/Neu): a study of incidence and correlation with outcome in breast cancer. *J. Clin. Oncol.* 18: 3230-3239.

CHROMOSOMAL LOCATION

Genetic locus: ERBB2 (human) mapping to 17q12; Erbb2 (mouse) mapping to 11 D.

SOURCE

p-Neu (19G5) is a mouse monoclonal antibody raised against a synthetic phosphopeptide containing Tyr 1112 phosphorylated Neu of human origin.

PRODUCT

Each vial contains 50 µg IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

APPLICATIONS

p-Neu (19G5) is recommended for detection of Tyr 1112 phosphorylated Neu of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

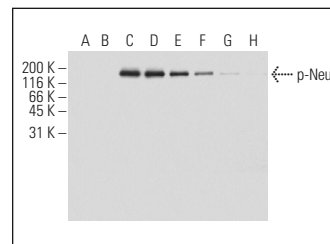
p-Neu (19G5) is also recommended for detection of correspondingly phosphorylated Neu in additional species, including canine.

Suitable for use as control antibody for Neu siRNA (h): sc-29405, Neu siRNA (m): sc-29406, Neu siRNA (r): sc-108038, Neu shRNA Plasmid (h): sc-29405-SH, Neu shRNA Plasmid (m): sc-29406-SH, Neu shRNA Plasmid (r): sc-108038-SH, Neu shRNA (h) Lentiviral Particles: sc-29405-V, Neu shRNA (m) Lentiviral Particles: sc-29406-V, Neu shRNA (r) Lentiviral Particles: sc-108038-V.

Molecular Weight of p-Neu: 138 kDa.

Positive Controls: A-431 + EGF whole cell lysate: sc-2202, SK-BR-3 cell lysate: sc-2218 or MDA-MB-231 cell lysate: sc-2232.

DATA



p-Neu (19G5): sc-81528. Western blot analysis of Neu phosphorylation in serum starved A549 cells (A) and serum starved A549 cells treated 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).

SELECT PRODUCT CITATIONS

1. Kostyal, D., et al. 2012. Trastuzumab and lapatinib modulation of HER2 tyrosine/threonine phosphorylation and cell signaling. *Med. Oncol.* 29: 1486-1494.
2. Szymanska, M., et al. 2016. A combination of two antibodies recognizing non-overlapping epitopes of HER2 induces kinase activity-dependent internalization of HER2. *J. Cell. Mol. Med.* 20: 1999-2011.
3. Kim, H., et al. 2020. ErbB3, a possible prognostic factor of head and neck squamous cell carcinoma. *Oral Surg. Oral Med. Oral Pathol. Oral Radiol.* 129: 377-387.

STORAGE

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

RESEARCH USE

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