SANTA CRUZ BIOTECHNOLOGY, INC.

p-Tyr (PY99): sc-7020

BACKGROUND

The critical involvement of protein tyrosine kinases in signal transduction pathways is well established. These kinases can be divided into two major groups, including the receptor tyrosine kinases and the non-receptor type kinases, of which the Src kinases are the prototypical members. Src kinases are generally associated with the internal portion of the plasma membrane and may function as signal transducers in association with surface receptors that lack an intracellular catalytic domain. The second major group of tyrosine kinases are the receptor tyrosine kinases. Over 50 members of this group of these receptors, belonging to fourteen families, have been identified to date. Ligand-induced tyrosine phosphorylation of such receptors induces receptor dimerization and subsequent autophosphorylation of specific individual phosphotyrosine residues located within their cytoplasmic domains, which serve as binding sites that interact with specific cytoplasmic molecules. Monoclonal antibodies to phosphotyrosine are valuable for the characterization and purification of proteins containing phosphotyrosyl residues and are used extensively for these purposes.

SOURCE

p-Tyr (PY99) is a mouse monoclonal antibody raised against p-Tyr.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

p-Tyr (PY99) is available conjugated to agarose (sc-7020 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-7020 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-7020 PE), fluorescein (sc-7020 FITC), Alexa Fluor® 488 (sc-7020 AF488), Alexa Fluor® 546 (sc-7020 AF546), Alexa Fluor® 594 (sc-7020 AF594) or Alexa Fluor® 647 (sc-7020 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-7020 AF680) or Alexa Fluor® 790 (sc-7020 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, p-Tyr (PY99) is available conjugated to biotin (sc-7020 B), 200 µg/ml, for WB, IHC(P) and ELISA.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

p-Tyr (PY99) is recommended for detection of phosphotyrosine-containing proteins of broad species 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with phosphoserine or phosphothreonine.

Positive Controls: A-431 + EGF whole cell lysate: sc-2202.

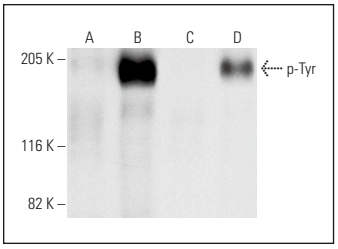
STORAGE

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

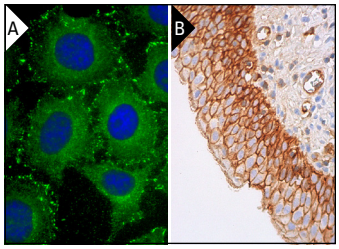
RESEARCH USE

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

DATA



Western blot analysis of p-Tyr phosphorylation in untreated (**A**,**C**) and EGF treated (**B**,**D**) A-431 whole cell lysates. Antibodies tested include p-Tyr (PY99): sc-7020 (**A**,**B**) and p-Tyr (PY20): sc-508 (**C**,**D**).



p-Tyr (PY99) Alexa Fluor® 488: sc-7020 AF488. Direct immunofluorescence staining of formalin-fixed HeLa cells showing membrane and focal adhesion sites (green) and nuclear DAPI counterstain (blue) localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded normal human urinary bladder tissue showing membrane and cytoplasmic localization of tyrosine phosphorylated proteins (**B**).

SELECT PRODUCT CITATIONS

1. Roy, B. and Cathcart, M.K. 1998. Induction of 15-lipoxygenase expression by IL-13 requires tyrosine phosphorylation of Jak2 and Tyk2 in human monocytes. J. Biol. Chem. 273: 32023-32029.
2. Uhrig, R.G., et al. 2016. Rhizobiale-like phosphatase 2 from *Arabidopsis thaliana* is a novel phospho-tyrosine specific PPP-family protein phosphatase. J. Biol. Chem. 291: 5926-5934.
3. Ni, Y., et al. 2017. TNFα alters occludin and cerebral endothelial permeability: role of p38MAPK. PLoS ONE 12: e0170346.
4. Wang, H., et al. 2018. The proto-oncogene c-Kit inhibits tumor growth by behaving as a dependence receptor. Mol. Cell 72: 413-425.e5.
5. Klapproth, S., et al. 2019. A kindlin-3-leupaxin-paxillin signaling pathway regulates podosome stability. J. Cell Biol. 218: 3436-3454.
6. Wist, M., et al. 2020. Non-catalytic Bruton's tyrosine kinase activates PLCγ2 variants mediating ibrutinib resistance in human chronic lymphocytic leukemia cells. J. Biol. Chem. 295: 5717-5736.
7. Nakamoto, R., et al. 2021. The bacterial tyrosine kinase system CpsBCD governs the length of capsule polymers. Proc. Natl. Acad. Sci. USA 118: e2103377118.
8. Kang, J., et al. 2022. EGFR-phosphorylated GDH1 harmonizes with RSK2 to drive CREB activation and tumor metastasis in EGFR-activated lung cancer. Cell Rep. 41: 111827.
9. Wang, H.Y., et al. 2023. Proper phosphorylation of septin 12 regulates septin 4 and soluble adenylyl cyclase expression to induce sperm capacitation. J. Cell. Physiol. 238: 597-609.

PROTOCOLS

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