3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

ANTI-SH-PTP2
Developed in Rabbit, IgG Fraction of Antiserum

Product Number **S 3056**

Product Description

Anti-SH-PTP2 is developed in rabbit using a synthetic peptide K-REDSARVYENVGLMQQQKSFR corresponding to the C-terminus of SH-PTP2 of human origin (amino acids 573-593 with N-terminally added lysine) conjugated to KLH as immunogen. This sequence is highly conserved across species (e.g. rat, mouse, single amino acid substitution). Whole antiserum is fractionated and then further purified by ion-exchange chromatography to provide the IgG fraction of antiserum that is essentially free of other rabbit serum proteins.

Anti-SH-PTP2 reacts specifically with SH-PTP2 (70 kDa) derived from a human cell extract. By immunoblotting, the antibody detects SH-PTP2 from Jurkat whole cell extract. Staining of the SH-PTP2 band (70 kDa) is specifically inhibited with the SH-PTP2 peptide (human, amino acids 573-593 with N-terminally added lysine).

Protein tyrosine phosphatases (PTPs) play a crucial role in the regulation of intracellular protein tyrosine phosphorylation in coordination with protein tyrosine kinases (PTKs) activity.[1-3] PTPs are present in all eukaryotic cells and play a critical role in signal transduction pathways which are involved in the regulation of cell-cycle progression, transcriptional regulation, cell growth, differentiation and apoptosis.[1-3] Several of the PTPs control the function of tyrosine kinase growth factor receptors which are encoded by oncogenes. PTPs can be characterized into two major categories: the receptor, transmembrane PTPs and non-receptor, intracellular PTPs. The receptor PTPs (e.g. LAR, CD45, PTPα, β, γ, δ, ε, μ, κ and ζ isoforms) contain a general structure of membrane receptor with an extracellular domain, a single transmembrane domain and one or two tandem repeats of a conserved PTP (250 a.a. residues) catalytic domain. The extracellular domain may contain functional domains such as IgG-like and fibronectin type III (Fn-III) repeats. The non-receptor intracellular PTPs (e.g. SH-PTP1, SH-PTP2, PTP1B, TC-PTP, Cdc25A, Cdc25B, MEG, PTP-BAS, etc.) include PTPs that are associated to the cell membrane and PTPs that localize to the nucleus. They contain a conserved PTP catalytic domain (250 a.a. residues) and SH2 domains which appear to be critical in targeting the PTP to tyrosine phosphorylated proteins. An additional group consists of dual specificity pTyr and pSer/pThr phosphatases, which includes the MAP Kinase Phosphatases (MKPs). SH-PTP2 (also termed PTP1D, PTP2C, Syp) is a 68kDa protein encoded by the *PTP1D* gene.[4-8] The *Syp* gene product is an alternatively spliced form of SH-PTP2 and is widely expressed throughout mouse development and in adult tissues.[5] SH-PTP2 is most closely related to the *drosophila* corkscrew (csw) gene product, a protein required for signal transduction.[5] SH-PTP2 contains two N-terminal SH2 domains and a C-terminal PTP catalytic domain. It is rapidly activated by tyrosine phosphorylation in response to mitogenic stimulation by growth factors such as EGF and PDGF.[5,6] Activated SH-PTP2 translocates to the cell membrane and interacts directly with the activated, autophosphorylated growth factor receptor (e.g. EGFR, PDGFR) and the insulin-receptor substrate-1 (IRS-1).[9,10] SH-PTP2 is widely expressed and especially abundant in muscle, brain, heart and kidney. Antibodies that react specifically with SH-PTP2 are useful tools for the study of expression and function of this PTP isoform in a variety cell types and tissues, and for correlating their expression pattern with physiological functions or pathological conditions.

Reagents

The product is supplied as IgG fraction in 0.01M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile
A minimum working dilution of 1: 5,000 is determined by immunoblotting using a whole extract of cultured Jurkat cells.

Note: In order to obtain best results and assay sensitivity in different techniques and preparations we recommend determining optimal working dilutions by titration test.

References

1. Ullrich, A. and Schlessinger, J., Cell, **61,** 203 (1990).
2. Charbonneau, H., and Tonks, N., Ann. Rev. Cell. Biol. **8,** 463 (1992).
3. Obermeier, A., et al., EMBO J., **15,** 73 (1996).
4. Freeman, R., et al., Proc. Natl. Acad. Sci. USA, **89**, 11239 (1992).
5. Feng, G-S., et al., Science, **259,** 1607 (1993).
6. Vogel, W., et al., Science, **259,** 1611 (1993).
7. Ahmad, S., et al., Proc. Natl. Acad. Sci. USA, **90**, 2197,(1993).
8. Zhao, Z. et al., J. Biol. Chem., **269,** 8780 (1994).
9. Kuhne, M. R., et al., J. Biol. Chem., **268,** 11479 (1993).
10. Yamauchi, K., et al., Proc. Natl. Acad. Sci. USA, **92**, 664 (1995).

lpg 9/98