



Recombinant Human SHP-2 (224-529)/PTPN11 Active Enzyme

BACKGROUND

SHP-2, also known as Tyrosine-protein phosphatase, non-receptor type 11 (PTPN11), Protein-tyrosine phosphatase 2C, PTP-2C, PTP-1D, SH-PTP3 and SH-PTP2 is protein tyrosine phosphatase which relays signals from growth factor receptors to Ras and other effectors. Germline PTPN11 mutations underlie ~50% of Noonan Syndrome (NS), a developmental disorder associated with an elevated risk of juvenile myelomonocytic leukemia (JMML). Somatic PTPN11 mutations were recently identified in ~35% of JMML patients; these mutations introduce amino acid substitutions that are distinct from those found in NS. These myeloid leukemias include activating mutations as in the RAS family members, and in the receptor tyrosine kinases KIT and FLT3, loss of function of NF-1 mutants, and gain-of-function mutations in the hematopoietic phosphatase SHP-2. Although these mutations collectively account for as many as 50% of cases of AML, with rare exception, only one of these is mutant in any given patient. This epidemiologic observation suggests that these mutations can be viewed as a complementation group and that any one of these is sufficient to contribute proliferative and survival advantage to a leukemic cell.

ORDERING INFORMATION

CATALOG NUMBER
X1663E

SIZE
20 µg

STORAGE CUSTOMER

Enzyme should be stored at -20°C.
Enzyme should be kept on ice when dispensing

STABILITY

Products are stable for one year from purchase when stored properly

SHIP CONDITIONS

Ship on gel ice, store at -20°C immediately upon arrival

FORMULATION

Provided in 25 mM Tris-HCl, 75 mM NaCl, pH 8.0, 0.05% Tween, 1 mM DTT and 50% glycerol 2 mM EDTA, 10 mM glutathione.

CONCENTRATION

Lot specific, see vial

SOURCE

Recombinant enzyme produced in E. coli

ACTIVITY

8.0 nmole/min/µg of enzyme; Determined using pNPP; Reaction conditions: 50 µM pNPP, 10 min incubation at 30°C, 5 µg enzyme.

PURITY

>90% pure as determined by Coomassie-stained SDS gel

REFERENCES

- [1] Ahmad S., Banville D.L., Zhao Z., Fischer E.H., Shen S.H.; "A widely expressed human protein-tyrosine phosphatase containing src homology 2 domains."; Proc. Natl. Acad. Sci. U.S.A. 90:2197-2201(1993).
- [2] Vogel W., Lammers R., Huang J., Ullrich A.; "Activation of a phosphotyrosine phosphatase by tyrosine phosphorylation."; Science 259:1611-1614 (1993).
- [3] Adachi M., Sekiya M., Miyachi T., Matsuno K., Hinoda Y., Imai K., Yachi A.; "Molecular cloning of a novel protein-tyrosine phosphatase SH-PTP3 with sequence similarity to the src-homology region 2."; FEBS Lett. 314:335-339(1992).
- [4] Bastien L., Ramachandran C., Liu S., Adam M.; "Cloning, expression and mutational analysis of SH-PTP2, human protein-tyrosine phosphatase." Biochem. Biophys. Res. Commun. 196:124-133(1993).
- [5] Freeman R.M. Jr., Plutzky J., Neel B.G.;

For research use only. Not for use in human diagnostics or therapeutics.

Cat. No. X1663E

ASSAY METHODS

MATERIALS

1. Assay Buffer: 50 mM HEPES, pH 7.4, 100 mM NaCl, 2 mM EDTA, 3 mM DTT
2. Stop solution: 2M K₂CO₃
3. 190 mM pNPP
4. Microtiter plate
5. Microtiter plate reader capable of measurements at 405 nm
6. Water bath or incubator at 30°C

PROCEDURE

1. Prepare reaction mixture:
 - a. 73 μ l assay buffer
 - b. 26 μ l pNPP (Final concentration of pNPP is 50 mM)
 - c. 1 μ l of SHP-2
2. Mix well and start reaction at 30°C in water bath and incubate for 10 min.
3. Add 100 μ l per well of 2 M K₂CO₃ to stop the reaction.
4. Read absorbance at 405 nm using a microtiter plate reader.

For research use only. Not for use in human diagnostics or therapeutics.

Cat. No. X1663E