Recombinant PTPbeta (1675–1996) Active Enzyme

Background

PTP beta, also known as Receptor-type tyrosine-protein phosphatase beta [Precursor], Protein-tyrosine phosphatase beta, R-PTP-beta, PTPRB or PTPB is a protein tyrosine phosphatase and is overexpressed in glioblastoma tumors. PTP beta plays a n important functional role in tumor cell migration and adhesion. Glioblastomas express at least three splice variants of PTPbeta, including long and short receptor forms. The short form of PTPbeta lacks exon 12, which encodes 860 amino acids located in the extracellular domain. In normal brain tissue and graded astrocytomas the long and short PTPbeta forms have an overlapping expression pattern. U87 stable cell lines overexpressing long or short PTPbeta migrate faster and adhere more robustly than parental U87 cells. The involvement of long and short PTPbeta in glioma tumor cell biology also contributes to the value of PTPbeta as a cancer target.

Ordering Information

Catalog Number
X1665E

Size
10 µg

Storage Customer
Product should be stored at -20ºC. Aliquot to avoid freeze/thaw cycles

Stability
Products are stable for one year from purchase when stored properly

Ship Conditions
Ship on gel ice, freeze upon arrival

Formulation
Provided in 25 mM Tris-HCl, 75 mM NaCl, pH 8.0, 0.05% Tween, 5 mM DTT and 50% glycerol

Concentration
1 mg/ml

Source
Recombinant enyzme produced in E. coli

Activity

45 nmole/min/µg of enzyme; Detemined using pNPP; Reaction conditions: 50 µM pNPP, 10 min incubation at 30ºC, 20 ng enzyme.

Purity

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

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 K_2CO_3
3. 190 mM pNPP
4. Microtiter plate
5. Microtiter plate reader capable of measurements at 405 nm
6. Water bath or incubator at 30ºC

Procedure

1. Prepare reaction mixture:
a. 73 µl assay buffer
b. 26 µl pNPP (Final concentration of pNPP is 50 mM)
c. 1 µl of PTP-beta
2. Mix well and start reaction at 30ºC in water bath and incubate for 10 min.
3. Add 100 µl per well of 2 M K_2CO_3 to stop the reaction.
4. Read absorbance at 405 nm using a microtiter plate reader.

Exalpha Biologicals, Inc 5 Clock Tower Place, Suite 255 Maynard, MA 01583
Tel: 800.395.1137 Fax: 866.924.5100 www.exalpha.com info@exalpha.com

REFERENCES

[1] Krueger N.X., Streuli M., Saito H.; "Structural diversity and evolution of human receptor-like protein tyrosine phosphatases."; EMBO J. 9:3241–3252(1990).

[2] Brunner RM, Rottengatter K, Horstmann RD, Gelhaus A, Goldammer T, Foerster B, Schwerin M. Assignment of the protein-tyrosine phosphatase beta gene (PTPRB) to cattle chromosome 5q23q24 by in situ hybridization and somatic cell panel analysis.
Cytogenet Genome Res. 2003;103(1–2):203G.

[3] Cheburkin IuV, Kniazeva TG, Peter S, Kniazev IuP, Karelin MI, Shkol'nik MI, Evtushenko VI, Hanson KP, Ullrich A, Kniazev PG. [Molecular portrait of human kidney carcinomas: the gene expression profiling of protein-tyrosine kinases and tyrosine phosphatases which controlled regulatory signals in the cells] Mol Biol (Mosk). 2002 May-Jun;36(3):480–90. Russian.

[4] Harder KW, Anderson LL, Duncan AM, Jirik FR. The gene for receptor-like protein tyrosine phosphatase (PTPRB) is assigned to chromosome 12q15—>q21. Cytogenet Cell Genet. 1992;61(4):269 -70.

[5] Lorente G, Nelson A, Mueller S, Kuo J, Urfer R, Nikolich K, Foehr ED. Functional comparison of long and short splice forms of RPTPbeta: Implications for glioblastoma treatment. Neuro-oncol. 2005 Apr;7 (2):154–63.

Exalpha Biologicals, Inc 5 Clock Tower Place, Suite 255 Maynard, MA 01583
Tel: 800.395.1137 Fax: 866.924.5100 www.exalpha.com info@exalpha.com