Purified Mouse Anti-R-PTP-ζ

Product Information

Material Number: 610180
Alternate Name: PTP-ZETA; PTPRZ; receptor-type tyrosine phosphatase beta/zeta; receptor-type tyrosine-protein phosphatase zeta
Size: 150 µg
Concentration: 250 µg/ml
Clone: 12/RPTPb
Immunogen: Human R-PTP-ζ aa. 2098-2307
Isotype: Mouse IgG1
Reactivity: QC Testing: Human
Tested in Development: Mouse, Rat
Target MW: 250 kDa
Storage Buffer: Aqueous buffered solution containing BSA, glycerol, and ≤0.09% sodium azide.

Description
Receptor-type tyrosine-protein phosphatase zeta (PTPRZ, R-PTP-ζ, or PTPζ) was previously known as RPTPβ or RPTPζ/β. It is the first mammalian tyrosine phosphatase to be characterized whose expression is limited to the nervous system. R-PTP-ζ consists of a large extracellular domain, a single transmembrane domain, and a cytoplasmic portion with two tandem catalytic domains. Three forms of R-PTP-ζ exist which appear to be derived from alternative splicing. The 9.5 kb and 6.4 kb transcripts encode two transmembrane forms. The 8.5 kb transcript encodes a secreted form of the extracellular domain of R-PTP-ζ. A region of 266 amino acids in the extracellular domain shows a high degree of homology with carbonic anhydrase. This region is very similar to rat brain chondroitin sulfate proteoglycan (3F8 PG) which appears to be the rat homologue of the entire extracellular domain of human R-PTP-ζ. The apparent molecular weight of human R-PTP-ζ is 250 kDa and approaches 300 kDa when the protein is glycosylated. R-PTP-ζ has regulatory effects in the development and repair of the nervous system. Interactions of R-PTP-ζ with the cytokines MK and PTN regulate cellular adhesion, motility, and migration events in nervous system development, and dis-regulation of these interactions appear to be involved in some neurologic disorders.

The 12/RPTPb monoclonal antibody was generated against a region known to have a high degree of homology to other proteoglycans, such as R-PTP-γ (75% homology). The immunogen sequence is not present in R-PTP-β, also known as VE-PTP or PTPRB, so cross-reactivity is not expected.

Western blot analysis of R-PTP-ζ in human T leukemia (left). Lysate from Jurkat cells was probed with Purified Mouse Anti-R-PTP-ζ (Cat. No. 610179 or 610180) at dilutions of 1:250, 2:500, and 1:1000 (Lanes 1, 2, and 3, respectively), followed by HRP Goat Anti-Mouse Ig (Cat. No. 610179). R-PTP-ζ is identified as a band of 250 kDa.

Immunofluorescent staining of human neuroblastoma cells (right). SH-SY5Y cells (ATCC CRL-2266) were seeded in a 384-well collagen-coated microplate at ~8,000 cells per well. After overnight incubation, the cells were fixed, permeabilized with cold methanol, and stained with Purified Mouse Anti-R-PTP-ζ. The second-step reagent was Alexa Fluor® 488 goat anti-mouse Ig (Invitrogen, pseudocolored green). Cell nuclei were counterstained with Hoechst 33342 (Cat. No. 561908, pseudocolored blue). The image was taken on a BD Pathway™ 855 or 435 Bioimager System using a 20× objective and merged using BD AttoVision™ software. This antibody also stained SK-N-SH (human neuroblastoma) and C6 (rat glioma) cells using both the Triton X-100 and methanol fix/perm protocols (see Recommended Assay Procedure: Bioimaging protocol link).
Preparation and Storage
The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography.
Store undiluted at -20°C.

Application Notes

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<tbody>
<tr>
<td>Western blot</td>
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<tr>
<td>Immunofluorescence</td>
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Suggested Companion Products

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<tbody>
<tr>
<td>611451</td>
<td>Jurkat Cell Lysate</td>
<td></td>
<td>(none)</td>
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<tr>
<td>554002</td>
<td>HRP Goat Anti-Mouse Ig</td>
<td>1 mL</td>
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<tr>
<td>554001</td>
<td>FITC Goat Anti-Mouse Ig</td>
<td>0.5 mg</td>
<td>Polyclonal</td>
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Product Notices
1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.
2. Source of all serum proteins is from USDA inspected abattoirs located in the United States.
3. Caution: Sodium azide yields highly toxic hydrazoic acid under acidic conditions. Dilute azide compounds in running water before discarding to avoid accumulation of potentially explosive deposits in plumbing.
4. Sodium azide is a reversible inhibitor of oxidative metabolism; therefore, antibody preparations containing this preservative agent must not be used in cell cultures nor injected into animals. Sodium azide may be removed by washing stained cells or plate-bound antibody or dialyzing soluble antibody in sodium azide-free buffer. Since endotoxin may also affect the results of functional studies, we recommend the NA/LE (No Azide/Low Endotoxin) antibody format, if available, for in vitro and in vivo use.
5. This antibody has been developed and certified for the bioimaging application. However, a routine bioimaging test is not performed on every lot. Researchers are encouraged to titrate the reagent for optimal performance.
6. Alexa Fluor® is a registered trademark of Molecular Probes, Inc., Eugene, OR.
7. Triton is a trademark of the Dow Chemical Company.
8. Species testing during development may have been performed with a different format of the same clone. Selected applications have been tested for cross-reactivity.

References

Krueger NX, Saio H. A human transmembrane protein-tyrosine-phosphatase, PTP zeta, is expressed in brain and has an N-terminal receptor domain homologous to carbonic anhydrases. *Proc Natl Acad Sci U S A.* 1992; 89(16):7417-7421. (Biology)