3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Monoclonal Anti-Phosphoserine,
antibody produced in mouse
clone PSR-45, purified immunoglobulin

Catalog Number **P5747**

Product Description

Monoclonal Anti-Phosphoserine (mouse IgG1 isotype) is derived from the PSR-45 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from a BALB/c mouse immunized with phosphoserine conjugated to KLH. The isotype is determined by a double diffusion assay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Monoclonal Anti-Phosphoserine recognizes phosphorylated serine both as a free amino acid or when conjugated to carriers such as BSA or KLH, using ELISA and dot blot. It does not react with non-phosphorylated serine, phosphorylated tyrosine or threonine, AMP, nor ATP. The antibody has been used for the detection of some phosphoserine containing proteins using immunoblotting[1,2,8-10] and dot blotting.[3]

Protein phosphorylation and dephosphorylation are basic signaling mechanisms that modify protein function in eukaryotic cells.[4] Phosphorylation is a rare post-translational event in normal tissues, however, the abundance of phosphorylated cellular proteins increases several fold following various activation processes. The main amino acids that are phosphorylated are tyrosine, serine, or threonine (pTyr/pSer/pThr), each having specific kinases that phosphorylate them and specific phosphatases that dephosphorylate them. Different growth factor receptors, such as the EGF-R, PDGF-R, and insulin receptor, contain Tyr/Ser/Thr residues that are autophosphorylated upon binding to their ligands.[5] Ligand binding of other receptors, like the T cell antigen receptor complex or receptors for some hematopoietic growth factors, stimulate downstream associated kinases.[6] An understanding of transformation by oncogenes and mitogenic processes of growth factors depends on the identification of their substrate and a subsequent determination of how phosphorylation affects the properties of these proteins.

Studies on the role of phosphorylated proteins have been hampered by their low abundance and the problem of distinguishing the various types of phosphorylated proteins. Immunoblotting of cellular proteins with antibodies directed against phosphoamino acids is advantageous over ^{32}P labeling, and can therefore be employed to monitor alterations in phosphorylation of specific proteins as they occur in intact organs or even in whole animals. Indeed, mono- and polyclonal antibodies directed against phosphorylated residues were generated and found useful as analytical and preparative tools[2,7] by enabling the identification, quantification, and immunoaffinity isolation of phosphorylated cellular proteins.

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as preservative.

Antibody Concentration: ~2 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards 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, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile
Immunoblotting: a working concentration of 2.5–5 μg/mL is determined using total rat brain extract.

Indirect ELISA: a working concentration of 0.3–0.6 μg/mL is determined using microwell plates coated with Phosphoserine-BSA, Catalog Number P3717, 10 μg/mL.

Note: In order to obtain best results in different techniques and preparations it is recommended to determine optimal working concentrations by titration test.

References

1. Zacour, M.E. et al., *Am. J. Physiol. Lung Cell. Mol. Physiol.*, **278**, L59-L67 (2000).
2. DeAizpurua, H.J. et al., *J. Biol. Chem.*, **272**, 16364-16373 (1997).
3. Pasqualini, E. et al., *Biochem. J.*, **327**, 527-535 (1997).
4. Hunter, T., and Cooper, J. A., Annu. Rev. Biochem., **54**, 897-930 (1985).
5. Heffetz, D. et al., *Methods Enzymol.*, **201**, 44-53 (1991).
6. Alexander, D., and Cantrell, D., *Immunol. Today*, **10**, 200-205 (1989).
7. Levine, L. et al., *J. Immunol. Meth.*, **124**, 239-249 (1989).
8. Lin, L. et al., *Oncology Rep.*, **10**, 665-669 (2003).
9. Zhao, M. et al., *FEBS Lett.*, **509**, 405-412 (2001).
10. Murphy, P.R. et al., *Endocrinology*, **142**, 81-88 (2001).

DS,PHC,MAM 02/18-1

©2018 Sigma-Aldrich Co. LLC. All rights reserved. SIGMA-ALDRICH is a trademark of Sigma-Aldrich Co. LLC, registered in the US and other countries. Sigma brand products are sold through Sigma-Aldrich, Inc. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see product information on the Sigma-Aldrich website at www.sigmaaldrich.com and/or on the reverse side of the invoice or packing slip.