#1205 Store at -20°C

p70 S6 Kinase Blocking Peptide

☑ 100 µg
(100 sections)

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rev. 05/24/17

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Description: This peptide is used to block p70 S6 Kinase (49D7) Rabbit mAb #2708 reactivity.

Background: p70 S6 kinase is a mitogen activated Ser/Thr protein kinase that is required for cell growth and G1 cell cycle progression (1,2). p70 S6 kinase phosphorylates the S6 protein of the 40S ribosomal subunit and is involved in translational control of 5' oligopyrimidine tract mRNAs (1). A second isoform, p85 S6 kinase, is derived from the same gene and is identical to p70 S6 kinase except for 23 extra residues at the amino terminus, which encode a nuclear localizing signal (1). Both isoforms lie on a mitogen activated signaling pathway downstream of phosphoinositide-3 kinase (PI-3K) and the target of rapamycin, FRAP/mTOR, a pathway distinct from the Ras/MAP kinase cascade (1). The activity of p70 S6 kinase is controlled by multiple phosphorylation events located within the catalytic, linker and pseudosubstrate domains (1). Phosphorylation of Thr229 in the catalytic domain and Thr389 in the linker domain are most critical for kinase function (1). Phosphorylation of Thr389, however, most closely correlates with p70 kinase activity *in vivo* (3). Prior phosphorylation of Thr389 is required for the action of phosphoinositide 3-dependent protein kinase 1 (PDK1) on Thr229 (4,5). Phosphorylation of this site is stimulated by growth factors such as insulin, EGF and FGF, as well as by serum and some G-protein-coupled receptor ligands, and is blocked by wortmannin, LY294002 (PI-3K inhibitor) and rapamycin (FRAP/mTOR inhibitor) (1,6,7). Ser411, Thr421 and Ser424 lie within a Ser-Pro-rich region located in the pseudosubstrate region (1). Phosphorylation at these sites is thought to activate p70 S6 kinase via relief of pseudosubstrate suppression (1,2). Another LY294002 and rapamycin sensitive phosphorylation site, Ser371, is an *in vitro* substrate for mTOR and correlates well with the activity of a partially rapamycin resistant mutant p70 S6 kinase (8).

Quality Control: The quality of the peptide was evaluated by reversed-phase HPLC and by mass spectrometry. The peptide blocks p70 S6 Kinase (49D7) Rabbit mAb #2708 signal in peptide dot blot.

Directions for Use: Use as a blocking reagent to evaluate the specificity of antibody reactivity in peptide dot blot protocols. Recommended antibody dilutions can be found on the product data sheet.

Entrez Gene ID #6198
UniProt ID #P23443

Storage: Supplied in 20 mM potassium phosphate (pH 7.0), 50 mM NaCl, 0.1 mM EDTA, 1 mg/ml BSA and 5% glycerol. 1% DMSO. Store at –20°C.

For product specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended complementary products.

Background References:

(1) Pullen, N. and Thomas, G. (1997) *FEBS Lett.* 410, 78–82.

(2) Dufner, A. and Thomas, G. (1999) *Exp. Cell Res.* 253, 100–109.

(3) Weng, Q.P. et al. (1998) *J. Biol. Chem.* 273, 16621–16629.

(4) Pullen, N. et al. (1998) *Science* 279, 707–710.

(5) Alessi, D.R. et al. (1998) *Curr. Biol.* 8, 69–81.

(6) Polakiewicz, R.D. et al. (1998) *J. Biol. Chem.* 273, 23534–23541.

(7) Fingar, D.C. et al. (2002) *Genes Dev.* 16, 1472–1487.

(8) Saitoh, M. et al. (2002) *J. Biol. Chem.* 277, 20104–20112.

Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide
Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.