Revision 5

#13575 Store at +4C

# Phospho-p90RSK (Ser380) (D5D8) Rabbit mAb (Alexa Fluor® 647 Conjugate)

Cell Signaling TECHNOLOGY®

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**For Research Use Only. Not for Use in Diagnostic Procedures.**

| Applications: | Reactivity: | Sensitivity: | Source/Isotype: | UniProt ID: | Entrez-Gene Id: |
|---|---|---|---|---|---|
| FC-FP | H M R Mk | Endogenous | Rabbit IgG | #P51812, #Q15349, #Q15418 | 6197, 6196, 6195 |

## Product Usage Information

| Application | Dilution |
|---|---|
| Flow Cytometry (Fixed/Permeabilized) | 1:50 |

## Storage

Supplied in PBS (pH 7.2), less than 0.1% sodium azide and 2 mg/ml BSA. Store at 4°C. Do not aliquot the antibody. Protect from light. Do not freeze.

## Specificity/Sensitivity

Phospho-p90RSK (Ser380) (D5D8) Rabbit mAb (Alexa Fluor® 647 Conjugate) recognizes endogenous levels of RSK1, RSK2, and RSK3 proteins only when phosphorylated at Ser380 (RSK1), Ser386 (RSK2), or Ser377 (RSK3).

## Species predicted to react based on 100% sequence homology

Chicken, Xenopus, Zebrafish, Bovine, Dog, Pig, Horse

## Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser377 of human p90RSK3 protein.

## Description

This Cell Signaling Technology antibody is conjugated to Alexa Fluor® 647 fluorescent dye and tested in-house for direct flow cytometry analysis in human cells. The antibody is expected to exhibit the same species cross-reactivity as the unconjugated Phospho-p90RSK (Ser380) (D5D8) Rabbit mAb #12032.

## Background

The 90 kDa ribosomal S6 kinases (RSK1-4) are a family of widely expressed Ser/Thr kinases characterized by two nonidentical, functional kinase domains (1) and a carboxy-terminal docking site for extracellular signal-regulated kinases (ERKs) (2). Several sites both within and outside of the RSK kinase domain, including Ser380, Thr359, Ser363, and Thr573, are important for kinase activation (3). RSK1-3 are activated via coordinated phosphorylation by MAPKs, autophosphorylation, and phosphoinositide-3-OH kinase (PI3K) in response to many growth factors, polypeptide hormones, and neurotransmitters (3). crazy

Upon mitogenic stimulation, p44/42 ERK1/2 and ERK5 MAP kinases cooperatively phosphorylate p90RSK at Thr573 (p90RSK1 numbering) located within the carboxy-terminal kinase domain and at Thr359/Ser363 in the linker region between the two kinase domains (3). Phosphorylation of p90RSK at Thr573 within the activation loop of the p90RSK carboxy-terminal kinase domain promotes activation and directs phosphorylation of Ser380 within the hydrophobic stretch of the linker region (4,5). The p90RSK phosphorylated at Ser380 acts as a docking site for the constitutively active Ser/Thr kinase PDK1, which in turn phosphorylates Ser221 within the amino-terminal kinase domain activation loop, resulting in full enzymatic activation of the p90RSK (6). Antibodies against these phosphorylation sites are useful for understanding the kinetics and regulation of p90RSK activation.

For more information regarding the phospho-regulatory sites within each RSK isoform, including more information regarding the seminal studies demonstrating the complex phosphorylation cascades involved, please see the references herein and PhosphoSitePlus® (www.phosphosite.org).

## Background References

1. Fisher, T.L. and Blenis, J. (1996) *Mol Cell Biol* 16, 1212-9.
2. Smith, J.A. et al. (1999) *J Biol Chem* 274, 2893-8.
3. Dalby, K.N. et al. (1998) *J Biol Chem* 273, 1496-505.
4. Roux, P.P. et al. (2003) *Mol Cell Biol* 23, 4796-804.
5. Cargnello, M. and Roux, P.P. (2011) *Microbiol Mol Biol Rev* 75, 50-83.
6. Romeo, Y. et al. (2012) *Biochem J* 441, 553-69.

## Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

## Applications Key

**FC-FP:** Flow Cytometry (Fixed/Permeabilized)

## Cross-Reactivity Key

**H:** Human **M:** Mouse **R:** Rat **Mk:** Monkey

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