

BACKGROUND

p70^{S6K} is a Ser/Thr kinase that is stimulated by a variety of mitogens, such as insulin, 12-*O*-tetradecanoylphorbol-13-acetate, and growth factors. The activation of p70^{S6K} is attributable to phosphorylation of Ser/Thr residues on multiple sites, such as Thr389, Ser424, and Thr421. Upon activation, p70^{S6K} phosphorylates the S6 protein of the 40S ribosomal subunit. Phosphorylated S6 directs the translational machinery toward increasing the production of translational machinery components, such as ribosomal proteins and elongation factors. Thus, p70^{S6K} plays an important role in cell growth, transformation, and transition of cell cycle in mammalian cells.¹

It is believed that PI-3 kinase and its downstream effector, the protein kinase Akt, act as signaling intermediates that link cell surface receptors to p70^{S6K}, typically activated upon stimulation of a cell with a growth factor (such as IGF-1).² It has also been reported that the PI-3 kinase structurally related enzyme, mTOR (also termed FRAP or RAFT), is also involved in the regulation of phosphorylation of p70^{S6K}. Branched chain amino acids, such as leucine, are also sufficient for the activation of mTOR, resulting in an increase in p70^{S6K} phosphorylation.³ On the other hand, AMPK plays important role in negatively regulating mTOR/p70 S6 kinase pathway.⁴

References:

1. Pearson RB & Thomas G: Prog. Cell Cycle Res. 1:21-32, 1995.
2. Chung J et al.: Nature 370:71-75, 1994.
3. Ban H et al.: Int J Mol Med. 13:537-43, 2004.
4. Chan AYM & Dyck JRB: Can. J. Physiol. Pharmacol. 83:24-28, 2005.

TECHNICAL INFORMATION

Source:

Phospho-p70^{S6K} (Thr389) Antibody is a rabbit antibody raised against a short peptide from human p70^{S6K} sequence surrounding and containing phospho-Thr389.

Specificity and Sensitivity:

This antibody detects endogenous phosphorylated p70^{S6K} (Thr389) proteins without cross-reactivity with other family members.

Storage Buffer: Rabbit IgG in phosphate buffered saline (without Mg²⁺ and Ca²⁺), pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.

Storage:

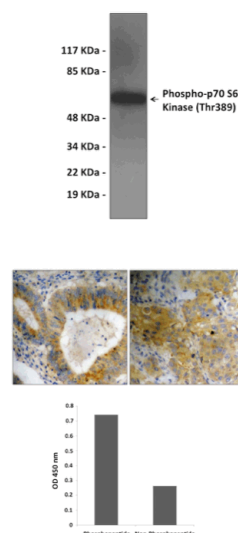
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

Application:	*Dilution:
WB	1:500-1:1000
IP	n/d
IHC	1:50-1:100
ICC	n/d
FACS	n/d
ELISA	1:1000

**Optimal dilutions must be determined by end user.*

QUALITY CONTROL DATA



Top: Western blot analysis of extracts from Jurkat cells treated with 0.01 U/mL Insulin for 5 minutes.

Middle: Immunohistochemistry analysis of paraffin-embedded Human colon carcinoma (left) and Human kidney carcinoma (right).

Bottom: ELISA for Immunogen Phosphopeptide (left) and Non-Phosphopeptide (right).

