

**PRAK Antibody**  
**Purified Mouse Monoclonal Antibody**  
**Catalog # AO1120a****Specification**

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**PRAK Antibody - Product Information**

Application	WB, IHC
Primary Accession	<a href="#">Q8IW41</a>
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	IgG1

**Description**

PRAK (p38-regulated /activated kinase), also referred to as mitogen-activated protein kinase (MAPK)-activated protein kinase (MAPKAPK)-5, is an ubiquitously expressed serine/threonine kinase regulated by p38 $\alpha$  and p38 $\beta$  MAP kinases. Activated JNK, p38 $\gamma$  or p38 $\delta$  are unable to induce phosphorylation of PRAK in vitro. Phosphorylation of PRAK occurs in vivo in response to p38 activation by stress-related extracellular stimuli including UV light, oxidation and proinflammatory cytokines. Two other substrates for p38, MAPKAPK-2 and MAPKAPK-3/3pK, share approximately 45% sequence homology with PRAK including the phosphorylation motif recognized by p38, Lys-X-Thr-Pro. Activated PRAK has been shown to specifically phosphorylate HSP 27 in vitro, suggesting that the protein may play a role in stress-induced small heat shock protein phosphorylation in vivo.

**Immunogen**

Purified recombinant fragment of PRAK expressed in E. Coli.

**Formulation**

Ascitic fluid containing 0.03% sodium azide.

**PRAK Antibody - Additional Information**

**Gene ID** 8550

**Other Names**

MAP kinase-activated protein kinase 5, MAPK-activated protein kinase 5, MAPKAP kinase 5, MAPKAP-K5, MAPKAPK-5, MK-5, MK5, 2.7.11.1, p38-regulated/activated protein kinase, PRAK, MAPKAPK5, PRAK

**Dilution**

WB~~1/500 - 1/2000

IHC~~1/200 - 1/1000

**Storage**

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

**Precautions**

PRAK Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

## **PRAK Antibody - Protein Information**

**Name** MAPKAPK5

**Synonyms** PRAK

### **Function**

Tumor suppressor serine/threonine-protein kinase involved in mTORC1 signaling and post-transcriptional regulation. Phosphorylates FOXO3, ERK3/MAPK6, ERK4/MAPK4, HSP27/HSPB1, p53/TP53 and RHEB. Acts as a tumor suppressor by mediating Ras-induced senescence and phosphorylating p53/TP53. Involved in post-transcriptional regulation of MYC by mediating phosphorylation of FOXO3: phosphorylation of FOXO3 leads to promote nuclear localization of FOXO3, enabling expression of miR-34b and miR-34c, 2 post-transcriptional regulators of MYC that bind to the 3'UTR of MYC transcript and prevent MYC translation. Acts as a negative regulator of mTORC1 signaling by mediating phosphorylation and inhibition of RHEB. Part of the atypical MAPK signaling via its interaction with ERK3/MAPK6 or ERK4/MAPK4: the precise role of the complex formed with ERK3/MAPK6 or ERK4/MAPK4 is still unclear, but the complex follows a complex set of phosphorylation events: upon interaction with atypical MAPK (ERK3/MAPK6 or ERK4/MAPK4), ERK3/MAPK6 (or ERK4/MAPK4) is phosphorylated and then mediates phosphorylation and activation of MAPKAPK5, which in turn phosphorylates ERK3/MAPK6 (or ERK4/MAPK4). Mediates phosphorylation of HSP27/HSPB1 in response to PKA/PRKACA stimulation, inducing F-actin rearrangement.

### **Cellular Location**

Cytoplasm. Nucleus. Note=Translocates to the cytoplasm following phosphorylation and activation. Interaction with ERK3/MAPK6 or ERK4/MAPK4 and phosphorylation at Thr-182, activates the protein kinase activity, followed by translocation to the cytoplasm Phosphorylation by PKA/PRKACA at Ser-115 also induces nuclear export

### **Tissue Location**

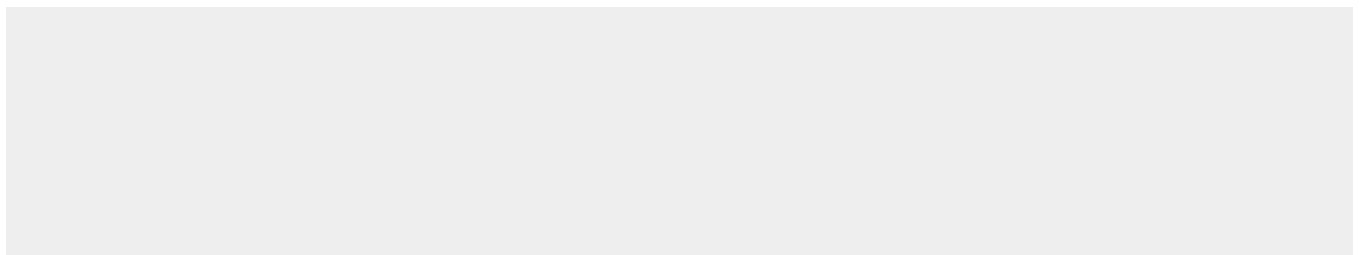
Expressed ubiquitously.

## **PRAK Antibody - Protocols**

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

## **PRAK Antibody - Images**



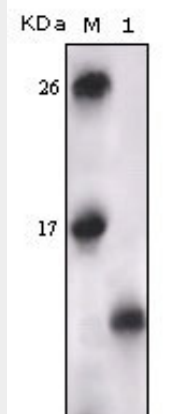


Figure 1: Western blot analysis using PRAK mouse mAb against truncated PRAK recombinant protein.

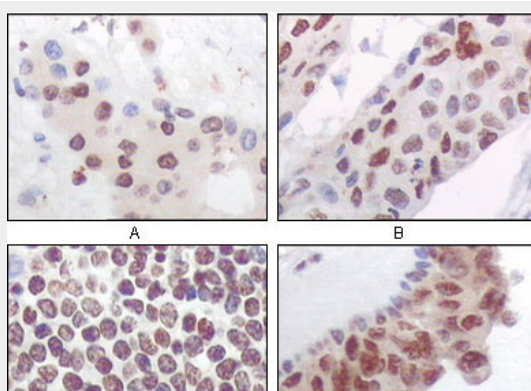


Figure 2: Immunohistochemical analysis of paraffin-embedded human liver carcinoma (A), esophagus carcinoma (B), normal spleen tissue (C), breast carcinoma (D), showing nuclear and cytoplasmic localization using PRAK mouse mAb with DAB staining.

### PRAK Antibody - References

1. Paliga AJ. Natale DR. Watson AJ. Biol Cell. 2005, Aug, 97(8):629-40.
2. Wijtten PJ. Prak R. Lemme A. et al. Br Poult Sci. 2004, Aug, 45(4):504-11.
3. New L. Jiang Y. Han J. Mol Biol Cell. 2003, Jun, 14(6):2603-16. Epub 2003 Mar 20.