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# PRAK Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1120a

## Product Information

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| **Application** | WB, IHC, E |
| **Primary Accession** | Q8IW41 |
| **Reactivity** | Human |
| **Host** | Mouse |
| **Clonality** | Monoclonal |
| **Clone Names** | 7H10B4 |
| **Isotype** | IgG1 |
| **Calculated MW** | 54220 |
| **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 p38α and p38β MAP kinases. Activated JNK, p38γ or p38δ 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. |

## Additional Information

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| **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 E~~N/A |
| **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. |

## Protein Information

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| **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. |

## 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.

## Images

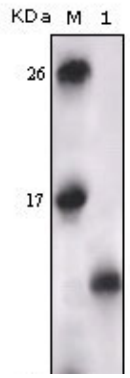
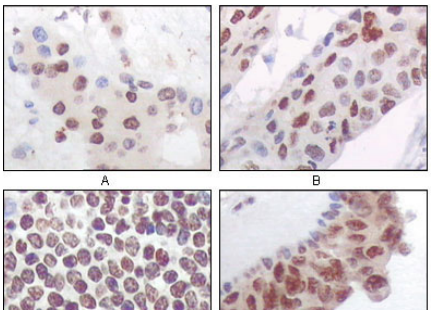



Figure 1: Western blot analysis using PRAK mouse mAb against truncated PRAK recombinant protein.

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.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.