abcam

ab223852

Anti-PAK1 (phospho T212) antibody [EPR20045]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR20045
Purification technique	Affinity purification Protein A
Concentration	0.507 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Dot

Tested

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/50
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/500
Notes	-

Target data

See full target information PAK1 pT212

Function

Protein kinase involved in intracellular signaling pathways downstream of integrins and receptor-type kinases that plays an important role in cytoskeleton dynamics, in cell adhesion, migration, proliferation, apoptosis, mitosis, and in vesicle-mediated transport processes (PubMed:10551809, PubMed:11896197, PubMed:12876277, PubMed:14585966, PubMed:15611088, PubMed:17726028, PubMed:17989089, PubMed:30290153, PubMed:17420447). Can directly phosphorylate BAD and protects cells against apoptosis (By similarity). Activated by interaction with CDC42 and RAC1 (PubMed:8805275, PubMed:9528787). Functions as a GTPase effector that links the Rho-related GTPases CDC42 and RAC1 to the JNK MAP kinase pathway (PubMed:8805275, PubMed:9528787). Phosphorylates and activates MAP2K1, and thereby mediates activation of downstream MAP kinases (By similarity). Involved in the reorganization of the actin cytoskeleton, actin stress fibers and of focal adhesion complexes (PubMed:9032240, PubMed:9395435). Phosphorylates the tubulin chaperone TBCB and thereby plays a role in the regulation of microtubule biogenesis and organization of the tubulin cytoskeleton (PubMed:15831477). Plays a role in the

regulation of insulin secretion in response to elevated glucose levels (PubMed:22669945). Part of a ternary complex that contains PAK1, DVL1 and MUSK that is important for MUSK-dependent regulation of AChR clustering during the formation of the neuromuscular junction (NMJ) (By similarity). Activity is inhibited in cells undergoing apoptosis, potentially due to binding of CDC2L1 and CDC2L2 (PubMed:12624090). Phosphorylates MYL9/MLC2 (By similarity). Phosphorylates RAF1 at 'Ser-338' and 'Ser-339' resulting in: activation of RAF1, stimulation of RAF1 translocation to mitochondria, phosphorylation of BAD by RAF1, and RAF1 binding to BCL2 (PubMed:11733498). Phosphorylates SNAI1 at 'Ser-246' promoting its transcriptional repressor activity by increasing its accumulation in the nucleus (PubMed:15833848). In podocytes, promotes NR3C2 nuclear localization (By similarity). Required for atypical chemokine receptor ACKR2-induced phosphorylation of LIMK1 and cofilin (CFL1) and for the up-regulation of ACKR2 from endosomal compartment to cell membrane, increasing its efficiency in chemokine uptake and degradation (PubMed:23633677). In synapses, seems to mediate the regulation of F-actin cluster formation performed by SHANK3, maybe through CFL1 phosphorylation and inactivation (By similarity). Plays a role in RUFY3-mediated facilitating gastric cancer cells migration and invasion (PubMed:25766321). In response to DNA damage, phosphorylates MORC2 which activates its ATPase activity and facilitates chromatin remodeling (PubMed:23260667). In neurons, plays a crucial role in regulating GABA(A) receptor synaptic stability and hence GABAergic inhibitory synaptic transmission through its role in F-actin stabilization (By similarity). In hippocampal neurons, necessary for the formation of dendritic spines and excitatory synapses; this function is dependent on kinase activity and may be exerted by the regulation of actomyosin contractility through the phosphorylation of myosin II regulatory light chain (MLC) (By similarity). Along with GIT1, positively regulates microtubule nucleation during interphase (PubMed:27012601). Phosphorylates FXR1, promoting its localization to stress granules and activity (PubMed:20417602). Phosphorylates ILK on 'Thr-173' and 'Ser-246', promoting nuclear export of ILK (PubMed:17420447).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

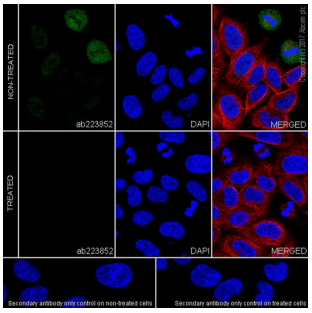
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

7 product images

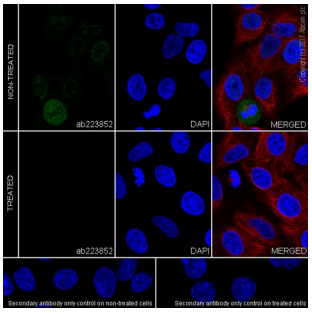


Immunocytochemistry/ Immunofluorescence - Anti-PAK1 (phospho T212) antibody [EPR20045] (ab223852)

PAK1 (phospho T212) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PAK1 (phospho T212) antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (human epithelial cell line from cervix adenocarcinoma) cells labeling PAK1 (phospho T212) with ab223852 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1,000 dilution (green). Confocal image showing positive staining on HeLa cells in M phase. The signal decreased after treatment with Lambda Protein Phosphatase 31☒ for 2 hours (treated).
The nuclear counter stain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) at 1/200 dilution (red).

The negative control: PBS followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1,000 dilution.

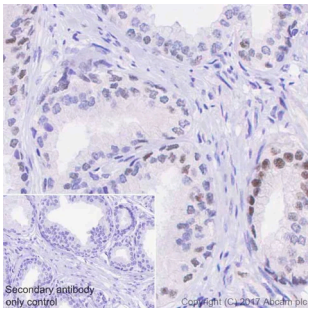


Immunocytochemistry/ Immunofluorescence - Anti-PAK1 (phospho T212) antibody [EPR20045] (ab223852)

PAK1 (phospho T212) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PAK1 (phospho T212) antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized A549 (human lung carcinoma cell line) cells labeling PAK1 (phospho T212) with ab223852 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1,000 dilution (green). Confocal image showing positive staining on HeLa cells in M phase. The signal decreased after treatment with Lambda Protein Phosphatase 31☒ for 2 hours (treated).
The nuclear counter stain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) at 1/200 dilution (red).

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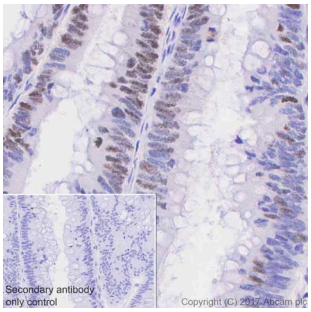


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PAK1 (phospho T212) antibody [EPR20045] (ab223852)

PAK1 (phospho T212) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PAK1 (phospho T212) antibody

Immunohistochemical analysis of paraffin-embedded human prostate tissue labeling PAK1 (phospho T212) with ab223852 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Sporadic nuclear staining on human prostate (PMID: 19876919; PMID: 12176334) is observed. Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).

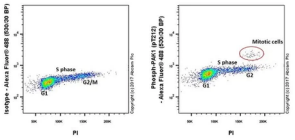


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PAK1 (phospho T212) antibody [EPR20045] (ab223852)

PAK1 (phospho T212) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PAK1 (phospho T212) antibody

Immunohistochemical analysis of paraffin-embedded human colon cancer tissue labeling PAK1 (phospho T212) with ab223852 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Nuclear staining on tumor cells of human colon cancer (PMID: 19876919; PMID: 12176334) is observed. Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

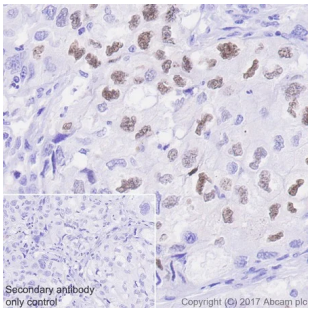
Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).



Flow Cytometry (Intracellular) - Anti-PAK1 (phospho T212) antibody [EPR20045] (ab223852)

PAK1 (phospho T212) Flow Cytometry (Intracellular) staining using rabbit Anti-PAK1 (phospho T212) antibody

Intracellular flow cytometric analysis of 80% methanol-fixed, 0.1% Tween-20 permeabilized HeLa (human epithelial cell line from cervix adenocarcinoma) cell line labeling PAK1 (phospho T212) with ab223852 at 1/50 (right panel) compared with a Rabbit monoclonal IgG (ab172730) Isotype control (left panel). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077), at 1/2,000 dilution was used as the secondary antibody. Unlabeled control cells without incubation with primary antibody and secondary antibody (Blue).
Cells were pretreated with 20µg/ml RNase A for 30 minutes to eliminate the non-specific binding between RNA and PI (Propidium iodide). PAK1 (phospho T212) is highly expressed in mitotic cells (PMID: 12176334).

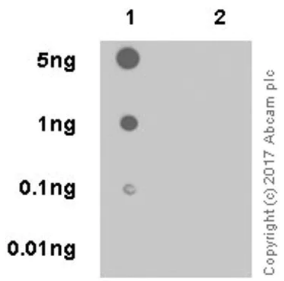


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PAK1 (phospho T212) antibody [EPR20045] (ab223852)

PAK1 (phospho T212) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PAK1 (phospho T212) antibody

Immunohistochemical analysis of paraffin-embedded human lung squamous cancer tissue labeling PAK1 (phospho T212) with ab223852 at 1/500 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Nuclear staining on tumor cells of human lung squamous cancer (PMID: 19876919; PMID: 12176334) is observed. Counter stained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) Ready to use.

Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).



Dot Blot - Anti-PAK1 (phospho T212) antibody [EPR20045] (ab223852)

Dot blot analysis of PAK1 (phospho T212) peptide using ab223852 1/1,000 dilution. Goat Anti-Rabbit IgG H&L (HRP) (ab97051), was used as secondary antibody at 1/100,000 dilution.
Lane 1: PAK1 (phospho T212) peptide.

Lane 2: PAK1 non-phospho peptide.

Blocking and dilution buffer: 5% NFDM/TBST.

Exposure time: 3 minutes.

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