abcam

ab109433

Anti-NEK7 antibody [EPR4901]

Recombinant | RabMAb | KO Validated

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	EPR4901
Purification technique	Affinity purification Protein A
Concentration	0.627 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

IP

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000 - 1/5000
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	0.2 µg/mL
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody. PFA fixation not recommended

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information NEK7

Function

Protein kinase which plays an important role in mitotic cell cycle progression (PubMed:17101132, PubMed:19941817, PubMed:31409757). Required for microtubule nucleation activity of the centrosome, robust mitotic spindle formation and cytokinesis (PubMed:17586473, PubMed:19414596, PubMed:19941817, PubMed:26522158, PubMed:31409757). Phosphorylates EML4 at 'Ser-146', promoting its dissociation from microtubules during mitosis which is required for efficient chromosome congression (PubMed:31409757). Phosphorylates RPS6KB1 (By similarity). Acts as an essential activator of the NLRP3 inflammasome assembly independently of its kinase activity (PubMed:26642356, PubMed:36442502, PubMed:39173637). Acts by unlocking NLRP3 following NLRP3 tranlocation into the microtubule organizing center (MTOC), relieving NLRP3 autoinhibition and promoting formation of the NLRP3:PYCARD complex, and activation of CASP1 (PubMed:26642356, PubMed:31189953, PubMed:36442502, PubMed:39173637, PubMed:40450990). Serves as a cellular switch that enforces mutual exclusivity of the inflammasome response and cell division: interaction with NEK9 prevents interaction with NLRP3 and activation of the inflammasome during mitosis (PubMed:26642356, PubMed:31189953).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Storage information	Stable for 12 months at -20°C

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.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	The NIMA-related kinase 7 (NEK7) is a member of the NEK family of serine/threonine kinases and plays an important role in cell division. With a molecular mass of approximately 34 kDa the NEK7 protein is involved in mitosis by regulating microtubule organization. It is primarily expressed in various tissues including human and marmoset thyroid tissues. It remains mainly inactive until mitotic entry where its activity becomes essential for proper spindle formation and completion of mitosis.
Biological function summary	Cell cycle progression heavily depends on NEK7's function. NEK7 interacts with NEDD1 in the microtubule-organizing center contributing to centrosome maturation and separation. This interaction makes NEK7 vital in the recruitment of γ-tubulin ring complex which is necessary for nucleating microtubules. NEK7 operates independently from the other NEK family members but shares involvement in centrosome-related activities.
Pathways	NEK7 is influential in the regulation of the mitotic spindle assembly pathway and the interleukin-1 (IL-1) signaling pathway. It is closely related to proteins like NEK6 and NEK9 which also play roles in mitotic progression and cytokinesis. NEK7's involvement in these pathways indicates its integrative function in ensuring normal cell division and response to inflammatory signals.
Associated diseases and disorders	NEK7 has implications in cancer and inflammatory ailments. NEK7 overexpression or mutation is often linked to tumorigenesis particularly in lung and brain cancers. Additionally NEK7 contributes to the activation of the NLRP3 inflammasome connecting it to inflammatory conditions like rheumatoid arthritis. The interplay with NLRP3 highlights the significance of NEK7 in inflammation-related diseases.

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.

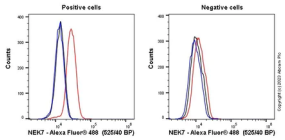
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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3 product images



Flow Cytometry (Intracellular) - Anti-NEK7 antibody [EPR4901] (ab109433)

NEK7 Flow Cytometry (Intracellular) staining using rabbit Anti-NEK7 antibody

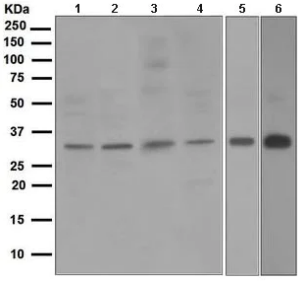
Flow cytometry overlay histogram showing left wild-type HAP1 WT and right NEK7 knockout HAP1 WT stained with ab109433 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilised with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS containing 10% normal goat serum to block non-specific protein-protein interaction followed by the antibody (ab109433) (1x 10^6 in 100µl at 0.2 µg/ml (1/3135 dilution)) for 30min at 22°C.

The secondary antibody Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed was incubated at 1/4000 dilution for 30min at 22°C

Isotype control antibody Recombinant Rabbit IgG, monoclonal [EPR25A] was used at the same concentration and conditions as the primary antibody (black line). Unlabelled sample was also used as a control (blue line).

Acquisition of >5000 events were collected using a 50 mW Blue laser (488nm) and 525/40 bandpass filter.

PFA fixation is not recommended.



Western blot - Anti-NEK7 antibody [EPR4901] (ab109433)

NEK7 Western blot staining using rabbit Anti-NEK7 antibody

All lanes:
Western blot - Anti-NEK7 antibody [EPR4901] (ab109433) at 1/10000 dilution

Lane 1:

Human brain lysate at 10 µg

Lane 2:
HeLa cell lysate at 10 µg

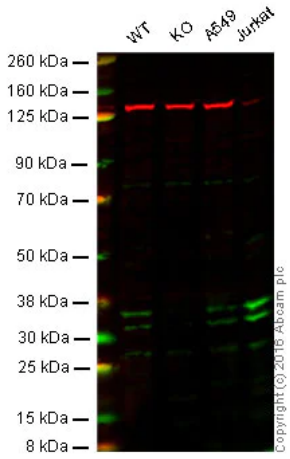
Lane 3:
A549 cell lysate at 10 µg

Lane 4:
HepG2 cell lysate at 10 µg

Lane 5:
Fetal liver lysate at 10 µg

Lane 6:
Jurkat cell lysate at 10 µg

Predicted band size: 35 kDa



Western blot - Anti-NEK7 antibody [EPR4901] (ab109433)

NEK7 Western blot staining using rabbit Anti-NEK7 antibody

Lane 1: Wild-type HAP1 cell lysate (40 µg)
Lane 2: NEK7 knockout HAP1 cell lysate (40 µg)
Lane 3: A549 cell lysate (20 µg)
Lane 4: Jurkat cell lysate (20 µg)
Lanes 1 - 4: Merged signal (red and green). Green - ab109433 observed at 35 kDa. Red - loading control, ab18058, observed at 124 kDa.
ab109433 was shown to specifically react with NEK7 when NEK7 knockout samples were used. Wild-type and NEK7 knockout samples were subjected to SDS-PAGE. ab109433 and ab18058 (loading control to Vinculin) were diluted at 1/1000 and 1/10000 dilution respectively and incubated overnight at 4C. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD)preadsorbed (ab216776) secondary antibodies at 1/10000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-NEK7 antibody [EPR4901] (ab109433)

Predicted band size: 35 kDa

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