abcam

ab227658

Anti-Ras (mutated Q61R) antibody [SP174]

Anti-Ras (mutated Q61R) antibody [SP174] (ab227658) is a rabbit monoclonal antibody detecting Ras in **Western Blot, Flow Cytometry (Intra), IHC-P**. Suitable for **Human**.

- Biophysical QC for unrivalled batch-batch consistency

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.6 Preservative: 0.1% Sodium azide Constituents: PBS, 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	SP174
Purification technique	Affinity purification Protein A/G
Specificity	This antibody has been found to react with different mutations we tested. We have not tested all possible mutations at Q61.
Concentration	0.02 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from TCS by protein A/G.

Reactivity data

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/2000
Notes	-

Not recommended

Species	Transfected cell line - Human
Dilution info	-
Notes	-

WB

Tested

Species	Transfected cell line - Human
Dilution info	1/400 - 1/1000
Notes	-

Species	Human
Dilution info	1/400 - 1/1000
Notes	-

IHC-P

Tested

Species	Transfected cell line - Human
Dilution info	1/100
Notes	Perform heat mediated antigen retrieval with EDTA buffer pH 8.0 before commencing with IHC staining protocol. This antibody may not be able to detect endogenous NRAS Q61K in patient tissue samples by IHC-P based on a collaborator's data.

Species	Human
Dilution info	1/100
Notes	Perform heat mediated antigen retrieval with EDTA buffer pH 8.0 before commencing with IHC staining protocol.

This antibody may not be able to detect endogenous NRAS Q61K in patient tissue samples by IHC-P based on a collaborator's data.

Target data

See full target information NRAS Q61R

Function	Ras proteins bind GDP/GTP and possess intrinsic GTPase activity.

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

What is this antibody validated in?
Anti-Ras (mutated Q61R) antibody [SP174] (ab227658) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunohistochemistry (IHC-P) in Human samples.

What is the molecular weight of Ras?
Anti-Ras (mutated Q61R) [SP174] (ab227658) specifically detects a band for Ras (UniProt: P01111) at a molecular weight of 21kDa.

Collaboration
Anti-Ras (mutated Q61R) [SP174] (ab227658) is a clone from the portfolio of Spring Bioscience (Roche) SP clones which have been optimised for immunohistochemistry (IHC).

Trusted by the scientific community
Anti-Ras (mutated Q61R) [SP174] (ab227658) was first used in a scientific publication in 2018 and has been cited over 10 times in peer-reviewed journals.

Other related products
We have a range of other formats of antibody clone [SP174] also available for your convenience: ab227658, Carrier

free - ab243933, ab279570, PE - ab318388, APC - ab318491, Alexa Fluor® 488 - ab318594, Alexa Fluor® 647 - ab318697, Alexa Fluor® 594 - ab318800, Alexa Fluor® 555 - ab318900, Alexa Fluor® 750 - ab321439

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	The Ras protein also known by its alternate names such as KRAS NRAS and HRAS functions as a small GTPase which is a type of enzyme that binds to guanosine triphosphate (GTP) and can switch to an inactive form when it hydrolyzes GTP to GDP. Ras proteins are encoded by genes located in different chromosomes and typically have a molecular weight of about 21 kDa. These proteins are expressed in various tissues throughout the body where they play key roles in cellular signaling.
Biological function summary	Ras proteins are pivotal in regulating cell proliferation differentiation and survival. They are often part of larger protein complexes that facilitate signal transduction across cell membranes. These proteins function as binary molecular switches toggling between active (GTP-bound) and inactive (GDP-bound) states. Mutations in Ras proteins such as NRAS Q61R can lead the protein to assume permanently active conformations disrupting normal cellular signaling processes and contributing to oncogenesis.
Pathways	Ras proteins play significant roles in the MAPK/ERK and PI3K/AKT signaling pathways. Their activation leads to a cascade of phosphorylation events that ultimately regulate gene expression. Within these pathways Ras proteins interact with various molecules including RAF kinases and the PI3K protein further illustrating their complex roles in signal propagation. These pathways control many cellular processes including growth differentiation and survival illustrating how Ras proteins integrate multiple signals to modulate cellular outcomes.
Associated diseases and disorders	Ras proteins are frequently implicated in various cancers notably pancreatic and colorectal cancers. Mutated forms of Ras such as KRAS G12V drive oncogenesis by promoting uncontrolled cell growth and division. In cancer pathology Ras often interacts with tumor suppressor proteins influencing the disease progression. Targeting Ras-mediated signaling pathways using approaches like pan-Ras inhibitors or chemiluminescence ELISAs represents an ongoing area of therapeutic research aimed at combating Ras-driven malignancies.

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.

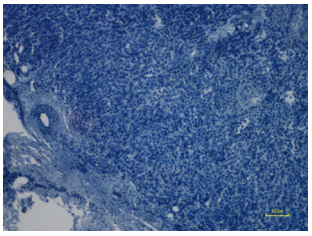
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

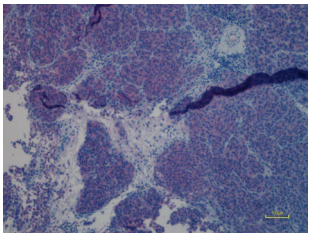
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10 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Ras (mutated Q61R) antibody [SP174] (ab227658)

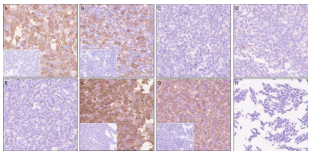
Immunohistochemical analysis of paraffin-embedded human metastatic malignant melanoma tissue (mutation status: NRAS Q61K) labeling NRAS with ab227658 at 1/100 dilution for 30 min at RT. The tissue was counterstained with Hematoxylin. Heat mediated antigen retrieval was achieved by using EDTA buffer pH 9.0 before IHC staining.



This image is courtesy of an anonymous collaborator.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Ras (mutated Q61R) antibody [SP174] (ab227658)

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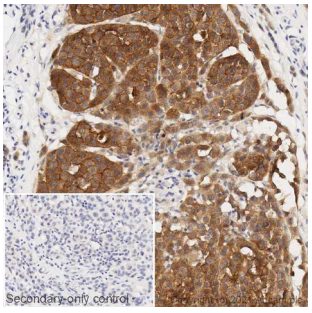


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Ras (mutated Q61R) antibody [SP174] (ab227658)

Ras (mutated Q61R) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Ras (mutated Q61R) antibody

Immunohistochemistry analysis of paraffin-embedded (A) HEK-293T transfected with NRAS (Q61R) expression vector, (B) HEK-293T transfected with NRAS (Q61K) expression vector, (C) HEK-293T transfected with NRAS (Q61H) expression vector, (D) HEK-293T transfected with NRAS (Q61L)

expression vector, (E) HEK-293T transfected with NRAS expression vector, (F) HEK-293T transfected with HRAS (Q61R) expression vector, (G) HEK-293T transfected with KRAS(Q61R) and (H) HEK-293T transfected empty vector, sections labelling NRAS (mutated Q61R) with ab227658 at 1/100 dilution. The section was incubated with ab227658 for 10 mins at room temperature. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Sections were counterstained with Hematoxylin. Antigen retrieval was heat mediated using Bond™ Epitope Retrieval Solution 2 (pH 9.0) for 20 minutes. Positive staining on HEK-293T transfected with NRAS (Q61R) expression vector (Image A), HEK-293T transfected with NRAS (Q61K) expression vector (Image B), HEK-293T transfected with HRAS (Q61R) expression vector (Image F) and HEK-293T transfected with KRAS (Q61R) expression vector (Image G); Nearly no staining on HEK-293T transfected with NRAS (Q61H) expression vector (Image C), HEK-293T transfected with NRAS (Q61L) expression vector (Image D), HEK-293T transfected with NRAS expression vector (Image E) and HEK-293T transfected empty vector (Image H). The immunostaining was performed on a Leica Biosystems BOND® RX instrument.

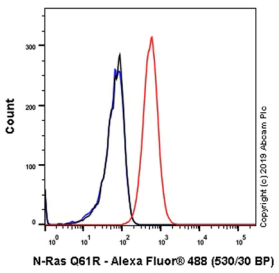


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Ras (mutated Q61R) antibody [SP174] (ab227658)

Ras (mutated Q61R) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Ras (mutated Q61R) antibody

IHC image of NRAS (mutated Q61R) staining in a section of formalin-fixed paraffin-embedded human skin melanoma* performed on a Leica BONDTM system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with EDTA buffer (pH9, epitope retrieval solution 2) for 20mins. The section was then incubated with ab227658, 1/100 dilution, for 15 mins at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX. The inset secondary-only control image is taken from an identical assay without primary antibody.
For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.

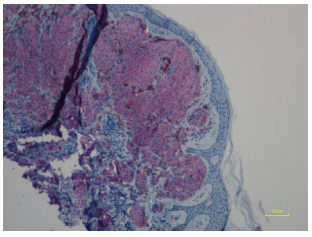
*Tissue obtained from the Human Research Tissue Bank, supported by the NIHR Cambridge Biomedical Research Centre



Flow Cytometry (Intracellular) - Anti-Ras (mutated Q61R) antibody [SP174] (ab227658)

Ras (mutated Q61R) Flow Cytometry (Intracellular) staining using rabbit Anti-Ras (mutated Q61R) antibody

Flow Cytometry analysis of SK-MEL-2(Human skin malignant melanoma) cells labeling NRAS with purifiedab227658 at 1:200 dilution (0.8 µg/ml) (Red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluor© 488, ab150077) secondary antibody was used at 1:2000 dilution. Isotype control - Rabbit monoclonal IgG (ab172730) / Black. Unlabeled control - Unlabelled cells / blue.

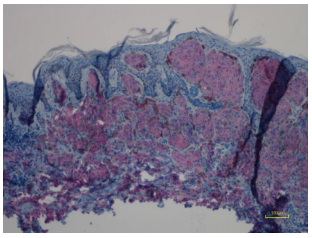


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Ras (mutated Q61R) antibody [SP174] (ab227658)

Immunohistochemical analysis of paraffin-embedded human primary malignant melanoma tissue (mutation status: NRAS Q61R) labeling NRAS with ab227658 at 1/100 dilution for 30 min at RT. The

This image is courtesy of an anonymous collaborator.

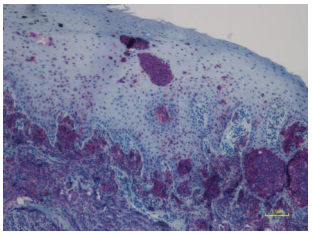
tissue was counterstained with Hematoxylin. Heat mediated antigen retrieval was achieved by using EDTA buffer pH 9.0 before IHC staining.



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Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Ras (mutated Q61R) antibody [SP174] (ab227658)

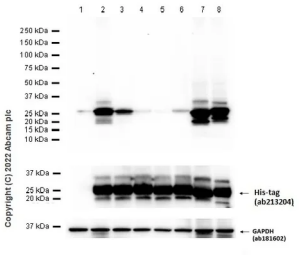
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Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Ras (mutated Q61R) antibody [SP174] (ab227658)

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Western blot - Anti-Ras (mutated Q61R) antibody [SP174] (ab227658)

Ras (mutated Q61R) Western blot staining using rabbit Anti-Ras (mutated Q61R) antibody

Blocking buffer and concentration: 5% NFDM/TBST Diluting buffer and concentration: 5% NFDM /TBST This antibody has been found to react with different mutations we tested. We haven’t tested all possible mutations at Q61.
All lanes:
Western blot - Anti-Ras (mutated Q61R) antibody [SP174] (ab227658) at 1/1000 dilution

Lane 1:
HEK-293T (Human embryonic kidney epithelial cell) transfected with an empty vector (vector control), containing a His-tag, whole cell lysate at 20 µg

Lane 2:
HEK-293T (Human embryonic kidney epithelial cell) transfected with His-tagged NRAS (mutated Q61R) whole cell lysate at 20 µg

Lane 3:
HEK-293T (Human embryonic kidney epithelial cell) transfected with His-tagged NRAS (mutated Q61K) whole cell lysate at 20 µg

Lane 4:
HEK-293T (Human embryonic kidney epithelial cell) transfected with His-tagged NRAS (mutated Q61H) whole cell lysate at 20 µg

Lane 5:
HEK-293T (Human embryonic kidney epithelial cell) transfected with His-tagged NRAS (mutated Q61L) whole cell lysate at 20 µg

Lane 6:
HEK-293T (Human embryonic kidney epithelial cell) transfected with His-tagged NRAS whole cell lysate at 20 µg

Lane 7:
HEK-293T (Human embryonic kidney epithelial cell) transfected with His-tagged HRAS (mutated Q61R) whole cell lysate at 20 µg

Lane 8:
HEK-293T (Human embryonic kidney epithelial cell) transfected with His-tagged KRAS (mutated Q61R) whole cell lysate at 20 µg

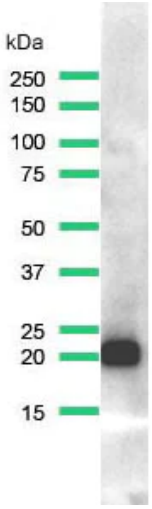
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 21 kDa

Observed band size: 25 kDa

Exposure time: 5s



Western blot - Anti-Ras (mutated Q61R) antibody [SP174] (ab227658)

All lanes:
Western blot - Anti-Ras (mutated Q61R) antibody [SP174] (ab227658) at 1/400 dilution

All lanes:
SK-MEL-2 cell lysate

Predicted band size: 21 kDa

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