abcam

ab6141

Anti-Aly/Ref antibody [11G5]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.1% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Full Length Protein corresponding to Human ALYREF. The exact immunogen used to generate this antibody is proprietary information. Database link Q86V81
Clone number	11G5
Purification technique	Affinity purification Protein A
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Purified from supernatant.

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1 µg/mL
Notes	

Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1 µg for 10^6 Cells
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Target data

See full target information ALYREF

Function

Functions as an mRNA export adapter; component of the transcription/export (TREX) complex which is thought to couple mRNA transcription, processing and nuclear export, and specifically associates with spliced mRNA and not with unspliced pre-mRNA (PubMed:15833825, PubMed:15998806, PubMed:17190602). TREX is recruited to spliced mRNAs by a transcription-independent mechanism, binds to mRNA upstream of the exon-junction complex (EJC) and is recruited in a splicing- and cap-dependent manner to a region near the 5' end of the mRNA where it functions in mRNA export to the cytoplasm via the TAP/NXF1 pathway (PubMed:15833825, PubMed:15998806, PubMed:17190602). Involved in the nuclear export of intronless mRNA; proposed to be recruited to intronless mRNA by ATP-bound DDX39B (PubMed:17984224). Plays a key role in mRNP recognition and mRNA packaging by bridging the mRNP-bound EJC and the TREX core complex (PubMed:37020021). TREX recruitment occurs via an interaction between ALYREF/THOC4 and the cap-binding protein NCBP1 (PubMed:15833825, PubMed:15998806, PubMed:17190602, PubMed:37020021). Required for TREX complex assembly and for linking DDX39B to the cap-binding complex (CBC) (PubMed:15998806, PubMed:17984224, PubMed:37020021). Binds mRNA which is thought to be transferred to the NXF1-NXT1 heterodimer for export (TAP/NXF1 pathway) (PubMed:11675789, PubMed:11707413, PubMed:11979277, PubMed:15833825, PubMed:15998806, PubMed:17190602, PubMed:18364396, PubMed:22144908, PubMed:22893130, PubMed:23222130, PubMed:25662211). In

conjunction with THOC5 functions in NXF1-NXT1 mediated nuclear export of HSP70 mRNA; both proteins enhance the RNA binding activity of NXF1 and are required for NXF1 localization to the nuclear rim (PubMed:19165146). Involved in mRNA export of C5-methylcytosine (m5C)-containing mRNAs: specifically recognizes and binds m5C mRNAs and mediates their nucleo-cytoplasmic shuttling (PubMed:28418038). Acts as a chaperone and promotes the dimerization of transcription factors containing basic leucine zipper (bZIP) domains and thereby promotes transcriptional activation (PubMed:10488337). Involved in transcription elongation and genome stability (PubMed:12438613). (Microbial infection) The TREX complex is essential for the export of Kaposi's sarcoma-associated herpesvirus (KSHV) intronless mRNAs and infectious virus production; ALYREF/THOC4 mediates the recruitment of the TREX complex to the intronless viral mRNA.

Storage

Shipped at conditions	Blue Ice
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

Supplementary info

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

Activity summary	Aly/Ref also known as THOC4 is a protein that plays an important role in mRNA processing and transport. It is a member of the TREX (transcription/export) complex having a molecular mass of approximately 27 kDa. Aly/Ref is primarily expressed in the nucleus where it binds to spliced mRNAs and ensures their export to the cytoplasm. Functionally Aly/Ref interacts with mRNA export adapters attaching to the cap-binding complex at the 5' end of mRNA facilitating its journey to the nuclear pore.
Biological function summary	Aly/Ref functions by forming tight associations with the TREX complex which includes other proteins like UAP56. It is responsible for coupling transcription with mRNA processing and export helping to maintain the integrity of gene expression. Aly/Ref directly influences the efficiency and accuracy of mRNA export impacting gene regulation by ensuring that only fully processed transcripts exit the nucleus. By doing so it helps coordinate the transcription and mRNA export processes.

Pathways	Aly/Ref associates with the mRNA surveillance pathway and the RNA export pathway. Aly/Ref works closely with proteins like EJC components which are involved in checking mRNA quality before export. This participation ensures that only correctly spliced mRNAs move from the nucleus to the cytoplasm where they translate into proteins. Aly/Ref also contributes to maintaining cellular homeostasis by regulating the amount of mRNA available for translation.
Associated diseases and disorders	Aly/Ref relates to cancer and neurological disorders. Changes in the expression or function of Aly/Ref can disrupt mRNA export leading to abnormal protein synthesis which is associated with cancer development. Furthermore Aly/Ref interacts with proteins such as NXF1 which are implicated in the onset of certain neurological disorders when mutated or misregulated revealing its broader impact on cellular health and disease progression.

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

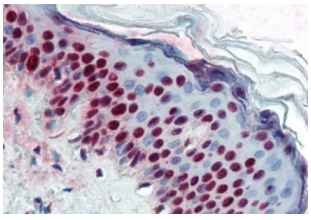
We do not recommend this combination. It is not covered by our product promise.

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:
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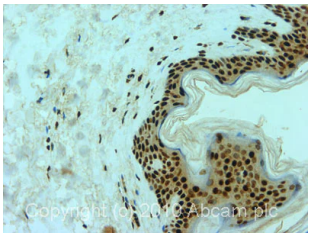
4 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Aly/Ref antibody [11G5] (ab6141)

Aly/Ref Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Aly/Ref antibody

Immunohistochemistry showing Aly/Ref in formalin fixed paraffin embedded skin tissue using ab6141 at 1 µg/ml.

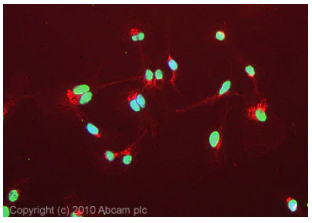


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Aly/Ref antibody [11G5] (ab6141)

Aly/Ref Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-Aly/Ref antibody

IHC image of ab6141 staining in human normal skin formalin fixed paraffin embedded tissue section, performed on a Leica Bond™ system using the standard protocol F. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH6, epitope retrieval solution 1) for 20 mins. The section was then incubated with ab6141, 1µg/ml, 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.

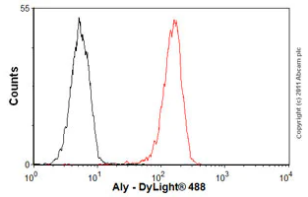
For other IHC staining systems (automated and non-automated) customers should optimize variable parameters such as antigen retrieval conditions, primary antibody concentration and antibody incubation times.



Immunocytochemistry - Anti-Aly/Ref antibody [11G5] (ab6141)

Aly/Ref Immunocytochemistry staining using mouse Anti-Aly/Ref antibody

ICC/IF image of ab6141 stained HepG2 cells. The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab6141, 5µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-mouse IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.



Flow Cytometry - Anti-Aly/Ref antibody [11G5] (ab6141)

Aly/Ref Flow Cytometry staining using mouse Anti-Aly/Ref antibody

Overlay histogram showing HeLa cells stained with ab6141 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab6141, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.

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