abcam

ab245249

Anti-LINE-1 ORF1p antibody [EPR22227-6]

Anti-LINE-1 ORF1p antibody [EPR22227-6] (ab245249) is a rabbit monoclonal antibody detecting LINE-1 ORF1p in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, ICC/IF**. 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: 7.2 - 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	EPR22227-6
Purification technique	Affinity purification Protein A
Concentration	0.489 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/30

Notes	-

WB

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	1/500
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/500
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information L1RE1

Function	Nucleic acid-binding protein which is essential for retrotransposition of LINE-1 elements in the genome. Functions as a nucleic acid chaperone binding its own transcript and therefore preferentially mobilizing the transcript from which they are encoded.

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-LINE-1 ORF1p antibody [EPR22227-6] (ab245249) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human samples.

What is the molecular weight of LINE-1 ORF1p?
Anti-LINE-1 ORF1p [EPR22227-6] (ab245249) specifically detects a band for LINE-1 ORF1p (UniProt: Q9UN81) at a molecular weight of 40kDa.

Other related products
We have a range of other formats of antibody clone [EPR22227-6] also available for your convenience: ab245249, Carrier free - ab246317, Alexa Fluor® 647 - ab314927, Alexa Fluor® 488 - ab315135

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.

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 LINE-1 ORF1p also called L1 ORF1p is a protein encoded by the open reading frame 1 (ORF1) of the long interspersed nuclear element-1 (LINE-1 or L1) family. These proteins typically have a mass of around 40 kDa. They are predominantly expressed in the germ line and embryonic tissues but can also be found in various somatic tissues under abnormal conditions. L1 ORF1p plays a critical role in the retrotransposition process by forming ribonucleoprotein complexes that assist LINE-1 RNA in entering the nucleus and integrating into the genome.
Biological function summary	L1 ORF1p facilitates the mobilization of LINE-1 elements within the genome impacting genome stability and variability. This protein forms a trimeric complex that binds LINE-1 RNA protecting it from degradation. By promoting the retrotransposition of LINE-1 elements L1 ORF1p influences genomic dynamics potentially contributing to genetic diversity but also potentially causing insertions that may lead to genomic instability and associated pathologies.
Pathways	The activity of L1 ORF1p intersects with genome defense mechanisms and cellular stress response pathways. Important pathways include the single-stranded DNA break repair system and retrotransposon silencing mechanisms where proteins like TREX1 and MOV10 play related roles. These pathways help control the activity of transposable elements and maintain genomic integrity providing a first line of defense against potential disruptions caused by retrotransposition events.
Associated diseases and disorders	Aberrant expression or dysregulation of L1 ORF1p has been linked to cancer and neurodegenerative disorders. Elevated levels of L1 ORF1p have been observed in some cancers such as lung and breast cancer where it may contribute to genomic instability. Furthermore Alzheimer's disease has shown L1 activity potentially involving interaction with amyloid precursor protein (APP) and contributing to disease pathology. Understanding these associations highlights the relevance of L1 ORF1p as a potential target for therapeutic intervention in these 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.

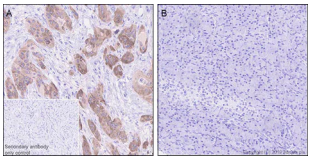
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

---

8 product images

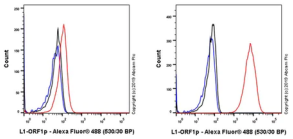


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-LINE-1 ORF1p antibody [EPR22227-6] (ab245249)

LINE-1 ORF1p Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-LINE-1 ORF1p antibody

Immunohistochemical analysis of paraffin-embedded human pancreatic cancer (Panel A) and adjacent normal tissue (Panel B) labeling LINE-1 ORF1p with ab245249 at 1/500 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP). Cytoplasmic staining in pancreatic cancer (Panel A) but negative in adjacent normal tissue (Panel B). (PMID:24607009). Counterstained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is a ready to use Goat Anti-Rabbit IgG H&L (HRP).

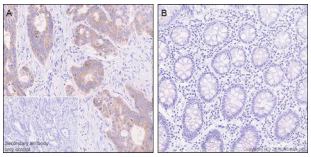
Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).



Flow Cytometry (Intracellular) - Anti-LINE-1 ORF1p antibody [EPR22227-6] (ab245249)

LINE-1 ORF1p Flow Cytometry (Intracellular) staining using rabbit Anti-LINE-1 ORF1p antibody

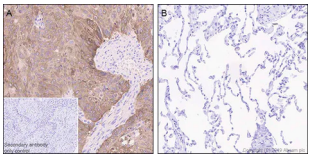
Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol permeabilized HCT 116 (human colorectal carcinoma epithelial cell, Left panel) / NCCIT (human pluripotent embryonic carcinoma epithelial cell, Right panel) cell lines labeling LINE-1 ORF1p with ab245249 at 1/500 (red) compared with a Rabbit monoclonal IgG (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077), at 1/2000 dilution was used as the secondary antibody. The expression level on HCT 116 (low) and NCCIT (high) is consistent with literature (PMID: 27016617).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-LINE-1 ORF1p antibody [EPR22227-6] (ab245249)

LINE-1 ORF1p Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-LINE-1 ORF1p antibody

Immunohistochemical analysis of paraffin-embedded human colon cancer (Panel A) and adjacent normal tissue (Panel B) labeling LINE-1 ORF1p with ab245249 at 1/500 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP). Cytoplasmic staining in colon cancer (Panel A) but negative in adjacent normal tissue (Panel B). (PMID:24607009). Counterstained with hematoxylin. Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is a ready to use Goat Anti-Rabbit IgG H&L (HRP).
Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).

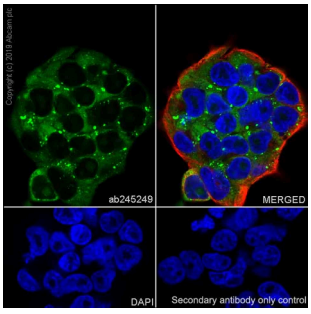


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-LINE-1 ORF1p antibody [EPR22227-6] (ab245249)

LINE-1 ORF1p Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-LINE-1 ORF1p antibody

Immunohistochemical analysis of paraffin-embedded human lung cancer (Panel A) and adjacent normal tissue (Panel B) labeling LINE-1 ORF1p with ab245249 at 1/500 dilution, followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP). Cytoplasmic staining in lung cancer (Panel A) but negative in adjacent normal tissue (Panel B). (PMID:24607009). Counterstained with hematoxylin. Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is a ready to use Goat Anti-Rabbit IgG H&L (HRP).

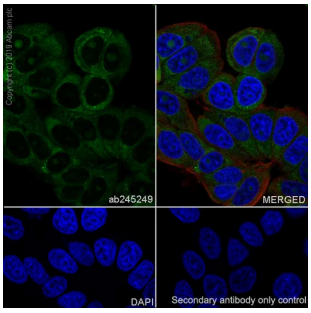
Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0).



Immunocytochemistry/ Immunofluorescence - Anti-LINE-1 ORF1p antibody [EPR22227-6] (ab245249)

LINE-1 ORF1p Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-LINE-1 ORF1p antibody

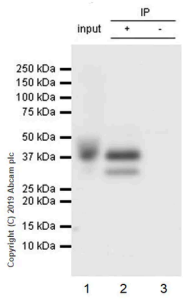
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized NCCIT (human pluripotent embryonic carcinoma epithelial cell) cells labeling LINE-1 ORF1p with ab245249 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic with punctate foci and nucleolar staining in NCCIT cells (PMID: 17562864; 15028673). The nuclear counter stain is DAPI (blue).
Counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) at a 1/200 dilution (red).
Secondary antibody only control: Used PBS instead of primary antibody, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.



Immunocytochemistry/ Immunofluorescence - Anti-LINE-1 ORF1p antibody [EPR22227-6] (ab245249)

LINE-1 ORF1p Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-LINE-1 ORF1p antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized MCF7 (human breast adenocarcinoma epithelial cell) cells labeling LINE-1 ORF1p with ab245249 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic with punctate foci and nucleolar staining in MCF7 cells (PMID: 15028673; 17562864). The nuclear counter stain is DAPI (blue).
Counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) at a 1/200 dilution (red).
Secondary antibody only control: Used PBS instead of primary antibody, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution..



Immunoprecipitation - Anti-LINE-1 ORF1p antibody [EPR22227-6] (ab245249)

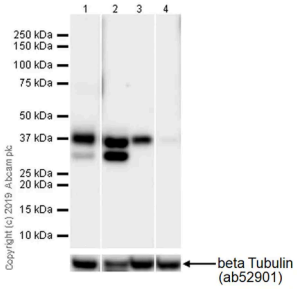
LINE-1 ORF1p was immunoprecipitated from 0.35 mg NCCIT (human pluripotent embryonic carcinoma epithelial cell) whole cell lysate with ab245249 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab245249 at 1/2000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/5000 dilution.
Lane 1: NCCIT whole cell lysate 10 µg (Input).
Lane 2: ab245249 IP in NCCIT whole cell lysate.
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab245249 in NCCIT whole cell lysate.

The lower 33-kDa band is likely to be the truncated form (PMID: 29505568).

Blocking/Dilution buffer: 5% NFDM/TBST.
Exposure time: 1 second.

All lanes:
Immunoprecipitation - Anti-LINE-1 ORF1p antibody [EPR22227-6] (ab245249)

Observed band size: 33 kDa, 42 kDa



Western blot - Anti-LINE-1 ORF1p antibody [EPR22227-6] (ab245249)

The molecular weight observed is consistent with what has been described in the literature (PMID: 29505568).
The lower 33-kDa band is likely to be a truncated form (PMID: 29505568).

Control cell line: HCT-116 (low-expression, PMID: 27016617).

Blocking/Dilution buffer: 5% NFDM/TBST.

Exposure times: Lane 1: 5 seconds; Lane 2, 3 and 4: 37 seconds.

All lanes:
Western blot - Anti-LINE-1 ORF1p antibody [EPR22227-6] (ab245249) at 1/1000 dilution

Lane 1:
NCCIT (human pluripotent embryonic carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:

MCF7 (human breast adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 3:
K562 (human chronic myelogenous leukemia lymphoblast) whole cell lysate at 20 µg

Lane 4:
HCT 116 (human colorectal carcinoma epithelial cell) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 40 kDa

Observed band size: 33 kDa, 42 kDa

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