abcam

ab192056

Alexa Fluor® 647 Anti-Cytokeratin 14 antibody [EP1612Y]

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Conjugation	Alexa Fluor® 647
Excitation/Emission	Ex: 650nm, Em: 665nm
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 30% Glycerol (glycerin, glycerine), 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EP1612Y
Purification technique	Affinity purification Protein A
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/50
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	Signal can be observed in cells fixed with MeOH or PFA.

Not recommended

Species	Mouse
Dilution info	-
Notes	Signal can be observed in cells fixed with MeOH or PFA.

Species	Rat
Dilution info	-
Notes	Signal can be observed in cells fixed with MeOH or PFA.

Flow Cyt (Intra)

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information Keratin, type I cytoskeletal 14

Function	The nonhelical tail domain is involved in promoting KRT5-KRT14 filaments to self-organize into large bundles and enhances the mechanical properties involved in resilience of keratin intermediate filaments in vitro.

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, Store in the dark

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.

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to use of the product or its components: in manufacturing; (ii) to provide a service, information, or data in return for payment (iii) for therapeutic, diagnostic or prophylactic purposes; or (iv) for resale, regardless of whether they are sold for use in research. For information on purchasing a license to this product for purposes other than research, contact Life Technologies Corporation, 5781 Van Allen Way, Carlsbad, CA 92008 USA or outlicensing@thermofisher.com.

Supplementary info

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

Activity summary	Cytokeratin 14 also known as CK14 keratin 14 or KRT14 is a type I keratin protein with a molecular mass of approximately 50 kDa. It forms intermediate filaments in epithelial cells primarily in the basal layer of stratified epithelium and is part of the cytoskeleton. Cytokeratin 14 expression appears in tissues such as the epidermis tongue and esophagus where it contributes to the structural integrity and mechanical stability of cells. Laboratories often utilize antibodies like anti-K14 and labels such as Alexa Fluor 555 or Alexa Fluor 647 to identify cytokeratin 14 in research settings.
Biological function summary	This protein significantly contributes to the maintenance and regeneration of epithelial tissues by forming a network of filaments with keratin 5. KRT14 pairs with keratin 5 to create a keratin intermediate filament complex which plays a structural role in the resilience and elasticity of epithelial tissues. This partnership is essential for the assembly of the cytoskeleton and supports the protective barrier function of the skin and related tissues.
Pathways	Cytokeratin 14 engages in pivotal cellular processes like keratinization and wound healing. The protein is actively involved in signal transduction pathways such as the epithelial cell differentiation pathway. Within these pathways KRT14 collaborates with KRT5 and other structural proteins to regulate cell proliferation and differentiation reflecting its importance in skin health and function.
Associated diseases and disorders	Cytokeratin 14 associates with specific genetic conditions including epidermolysis bullosa simplex (EBS) and squamous cell carcinoma (SCC). In EBS mutations in the KRT14 gene lead to skin fragility. In SCC altered expression of KRT14 and related proteins such as keratin 5 can influence tumor progression and invasion. These associations highlight the critical role of KRT14 in both normal and pathological epithelial function.

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.

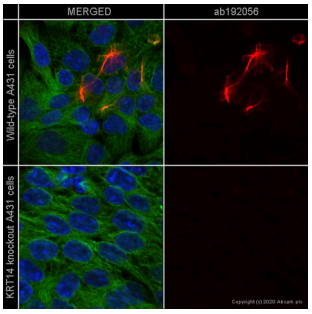
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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

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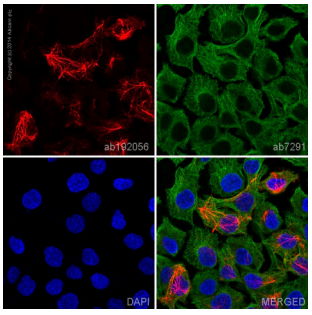
9 product images



Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 647 Anti-Cytokeratin 14 antibody [EP1612Y] (ab192056)

Cytokeratin 14 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cytokeratin 14 antibody

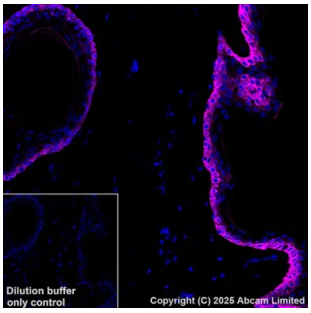
ab192056 staining KRT14 in wild-type A431 cells (top panel) and KRT14 knockout A431 cells (bottom panel). The cells were fixed with 100% methanol (5 min) then permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab192056 at 1/100 dilution and ab195887 (Mouse monoclonal to alpha Tubulin - Alexa Fluor® 488) at 1/250 dilution overnight at 4°C. Nuclear DNA was labelled in blue with DAPI.
Image was taken with a confocal microscope (Leica-Microsystems TCS SP8).



Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 647 Anti-Cytokeratin 14 antibody [EP1612Y] (ab192056)

Cytokeratin 14 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cytokeratin 14 antibody

ab192056 staining Cytokeratin 14 in A431 cells. The cells were fixed with 100% methanol (5min), permeabilized in 0.1% Triton X-100 for 5 minutes and then blocked in 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab192056 at a working dilution of 1 in 100 (shown in red) and ab7291 (Mouse monoclonal [DM1A] to alpha Tubulin) at 1µg/ml overnight at +4°C, followed by a further incubation at room temperature for 1h with an Alexa Fluor® 488 Goat anti-Mouse secondary (ab150117) at 2µg/ml (shown in green). Nuclear DNA was labelled in blue with DAPI.
This product gave a positive signal in 4% formaldehyde (10min) fixed HeLa cells under the same testing conditions.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Alexa Fluor® 647 Anti-Cytokeratin 14 antibody [EP1612Y] (ab192056)

Cytokeratin 14 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human skin using rabbit Anti-Cytokeratin 14 antibody

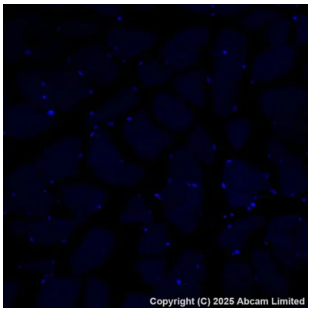
Immunohistochemical analysis of paraffin-embedded Human skin tissue labelling Anti-Cytokeratin 14 with ab192056 at 1/50 (10.0 ug/ml) dilution.

Positive staining on Human skin.

The primary antibody was incubated for 60 mins at room temperature (shown in magenta). Nuclear DNA was labelled with DAPI (shown in blue). The section was then mounted using Fluoromount®.

The immunostaining was performed on a Leica Biosystems BOND RX instrument. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 40 mins.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Alexa Fluor® 647 Anti-Cytokeratin 14 antibody [EP1612Y] (ab192056)

Cytokeratin 14 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human skeletal muscle using rabbit Anti-Cytokeratin 14 antibody

Immunohistochemical analysis of paraffin-embedded Human skeletal muscle tissue labelling Anti-Cytokeratin 14 with ab192056 at 1/50 (10.0 ug/ml) dilution.

Negative control: no staining on Human skeletal muscle.

The primary antibody was incubated for 60 mins at room temperature (shown in magenta). Nuclear DNA was labelled with DAPI (shown in blue). The section was then mounted using Fluoromount®.

The immunostaining was performed on a Leica Biosystems BOND RX instrument. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 40 mins.

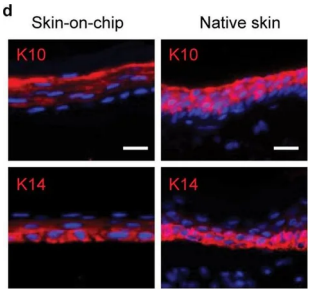


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HSV infectivity at different stages of keratinocyte differentiation.a Schematic of HSV epidermal infection during keratinocytes differentiation in the skin-on-chip. Keratinocytes were infected with HSV (106 PFU) 1 day prior to air lifting or 1, 3, 5, 7, or 9 days post air lifting and examined 24 h post

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infection. b Representative cross-section H&E images of the skin-on-chip (mock infected) at different time points before and after air lifting. Scale bar: 20 µm. c Expression of keratinocyte differentiation marker Keratin 10 (K10) in mock infected skin-on-chip at times (indicated in b). K10 (green), DAPI (blue). Scale bars: 20 µm. d Expression of keratinocyte markers K10 and K14, basement membrane marker collagen IV (Col IV) and stromal marker vimentin (VIM) in the epidermis of skin-on-chip (left) compared with native human skin (right). Scale bars: 20 µm. e HSV infection in the epidermis of skin-on-chip by HSV-1 strain K26 (green, upper row) or by HSV-2 strain 186 (red, bottom row). DAPI (blue). Scale bar: 20 µm. f, g Infection was initiated at indicated keratincyte differentiation day and assessed 24 h later. Statistics generated by repeated measures one-way ANOVA with Tukey' s post-test and indicates difference from −1 day. f Quantification of virally infected cells and mean fluorescence intensity (MFI, *p = 0.0198, **p = 0.0012, ***p = 0.0003, **p = 0.0012, **p = 0.004) of viral gene expression for HSV-1 (n = 5). g Quantification of virally infected cells (***p = 0.0006) and MFI of viral gene expression for HSV-2 (n = 3). ****p < 0.0001 for all graphs. Data are provided in a Source data file.

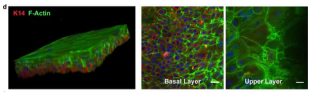


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Cytokeratin 14 Immunohistochemistry staining using rabbit Anti-Cytokeratin 14 antibody

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Skin-on-chip contains a stratified epidermis and dermis with a functional microvascular network.a, b Schematics of the major components in native human skin and skin-on-chip. c Representative 3-D reconstructed confocal image showing an overview of the cytoskeleton of the micro-engineered epidermis and dermis with underlying endothelialized microvascular network (white arrow indicates microfluidic flow direction). F-actin for cell cytoskeleton (green), DAPI for cell nucleus (blue). d Representative 3-D reconstructed confocal image illustrating basale (bottom, K14+) and corneous (upper, anucleate) layers in the epidermis of skin-on-chip. F-actin (green), K14 (red), DAPI (blue). Scale bar: 20 µm. e A cross-sectional view of hematoxylin–eosin (H&E) stained epidermis in the skin-on-chip. Scale bar: 20 µm. f Maximum intensity projected confocal image of an endothelialized microvascular network in the dermis after two weeks of culturing. F-actin (green), DAPI (blue). Scale bar: 100 µm. g Projected confocal images showing endothelium marker (CD31) expression, lumen formation (yz), and fibroblast capping of endothelial vessel (bottom). CD31 (green), Vimentin (red), DAPI (blue). Scale bar: 100 µm. h Representative fluorescence image after perfusion with 40 kDa FITC-Dextran through the microvasculature for 20 min. Graph depicts fluorescence intensity across the microvasculature inside the dashed box at 7 min (red) and 10 min after perfusion (blue). Scale bar: 100 µm. i F-actin cytoskeleton arrangement in endothelial cells and related flow shear force. Right: enlarged view within the white boxes. Scale bar: 100 µm. j Representative confocal image showing new sprouting from the main vessel lumen after angiogenetic stimuli. Right image shows cross-sectional view (yz). CD31 (green), Vimentin (red), DAPI (blue). Scale bar: 100 µm. Data are provided in a Source data file.

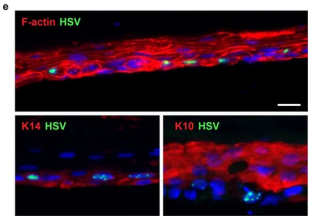


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HSV Infection in epidermis of human skin-on-chip and native human skin.a Schematic of epidermal HSV infection protocol by a biopsy punch. HSV-1 K26 virus (106 PFU) was added on top of the epithelium after the stratified epidermis was disrupted by a 1.5 mm biopsy punch. b GFP expression of HSV-1 K26-infected 3-D skin-on-chip epidermis at 24 h post infection. Image shown as a maximum intensity projection of confocal z stacks. HSV-1 K26 (green). Scale bar: 500 µm. c HSV infection in the epidermis of skin-on-chip. Arrows indicate margination of chromatin, enlargement of the cell nucleus, and multi-nucleation. F-actin (red), HSV-1 K26 (red), DAPI (blue). Scale bar: 20 µm. d Human ulcerative HSV lesion in a representative genital skin biopsy. HSV (green), DAPI (blue). Scale bar: 200 µm (upper) and 20 µm (lower). e HSV infection of the basal layer (indicated by K14 staining) of the 3-D skin-on-chip epidermis. HSV-1 K26 (green), DAPI (blue), K14 or K10 (red). Scale bar: 20 µm.

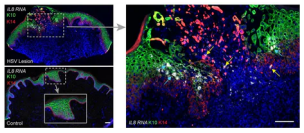


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Neutrophil migration and cytokine expression in human genital HSV ulcers.a Neutrophil infiltration from dermis into HSV-infected epidermis in a human skin biopsy representative of an ulcerative herpes lesion. CD15+ neutrophils (green), HSV (red). Scale bar: 100 µm. b Transcriptional levels of IL8, IL6, RANTES, and TNFA in human skin biopsies obtained from sites of HSV ulcerative lesion (n = 4) or from uninvolved contralateral controls (CTL, n = 3). Microarray data re-analyzed from a published data source45. *p = 0.0185 ***p < 0.0001 generated with paired two-tailed t-test. c Detection of epidermal IL8 RNA transcripts using fluorescence in situ hybridization (FISH) in human skin biopsies. HSV lesion (upper) and matched normal control at contralateral site (bottom). Enlarged image of dashed box in HSV lesion showing IL8 expression in K14+ basal keratinocytes (red, indicated by yellow arrows) and in K10+ differentiated keratinocytes (green, indicated by white arrows) (right). Scale bar: 100 µm. dRANTES RNA transcripts expression by FISH in control (left) and lesion (center and right) biopsies. Enlarged image of dashed box showing combined RANTES expression in K14+ keratinocytes and CD3+ T cells (top) and of only RANTES expression (bottom). K14 (red), CD3 (green), RANTES (white), DAPI (blue). Scale bar: 100 µm. eTNFA RNA transcripts expression by FISH in control (left) and lesion (right) biopsies. Enlarged image of dashed box (right). CD3 (green), TNFA (red), DAPI (blue). Scale bar: 100 µm. Data are provided in a Source data file.

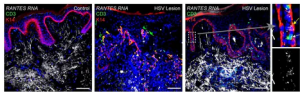


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(bottom). Enlarged image of dashed box in HSV lesion showing IL8 expression in K14+ basal keratinocytes (red, indicated by yellow arrows) and in K10+ differentiated keratinocytes (green, indicated by white arrows) (right). Scale bar: 100 µm. dRANTES RNA transcripts expression by FISH in control (left) and lesion (center and right) biopsies. Enlarged image of dashed box showing combined RANTES expression in K14+ keratinocytes and CD3+ T cells (top) and of only RANTES expression (bottom). K14 (red), CD3 (green), RANTES (white), DAPI (blue). Scale bar: 100 µm. eTNFA RNA transcripts expression by FISH in control (left) and lesion (right) biopsies. Enlarged image of dashed box (right). CD3 (green), TNFA (red), DAPI (blue). Scale bar: 100 µm. Data are provided in a Source data file.

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