abcam

ab52625

# Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker

Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625) is a rabbit monoclonal antibody detecting Cytokeratin 19 in **Western Blot, Flow Cytometry (Intra), IHC-P, ICC/IF, mIHC**. Suitable for **Human, Mouse, Rat**.

- Multiplex IHC validated on the Leica BOND® MAX using Opal reagents
- Biophysical QC for unrivalled batch-batch consistency
- Over 230 publications
- Trusted since 2007

Mouse and rat version of this clone also available as ab323562 and ab323561. Same clone, same staining pattern, different species antibody backbone.
Learn more about chimeric antibodies

Lab Essentials | Recombinant | RabMAb | Advanced Validation | 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** | EP1580Y |
| **Purification technique** | Affinity purification Protein A |
| **Dissociation constant** | 3.7 x $10^{-10}$ M |
| **Concentration** | 0.89 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

# Reactivity data

## mIHC

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/400 - 1/6000 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/6000 |
| **Notes** | Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. |

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 1/6000 |
| **Notes** | Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. |

## IP

### Not recommended

| | |
|---|---|
| **Species** | Mouse, Human, Rat |
| **Dilution info** | - |
| **Notes** | - |

## WB

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/50000 - 1/200000 |
| **Notes** | **For unpurified, use 1/10000 - 1/50000.** |

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/50000 - 1/200000 |
| **Notes** | **For unpurified, use 1/10000 - 1/50000.** |

### Expected

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 2 µg/mL |
| **Notes** | **For unpurified, use 1/50. Signal can be observed in cells fixed with either methanol or paraformaldehyde.**<br>**This product gave a positive signal in MCF7 (-ve: SH-SY5Y) fixed with 100% methanol (5 min).** |

### Expected

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

## IHC-P

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/400 - 1/800 |
| **Notes** | **For unpurified, use at 1/100.**<br>Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. |

### Expected

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

## Flow Cyt (Intra)

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/262500 |
| **Notes** | ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody. |

### Expected

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

## Target data

See full target information KRT19

| | |
|---|---|
| **Function** | Involved in the organization of myofibers. Together with KRT8, helps to link the contractile apparatus to dystrophin at the costameres of striated muscle. |

## Storage

| | |
|---|---|
| **Shipped at conditions** | Conditional Ambient |
| **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

Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625) was developed by Abcam using patented rabbit monoclonal antibody technology and is validated for use in Flow Cyt (Intra), ICC/IF, IHC-P, WB, and mIHC.

Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625) was first used in a scientific publication in 2008 and has been cited over 231 times in peer reviewed journals. It's performance in IHC in mouse and human samples is trusted by the scientific community.

Abcam's high quality manufacturing and validation processes ensure Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625) has high sensitivity and specificity alongside high lot-to-lot consistency and reproducibility.

Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625) has 13 independent reviews from customers.

Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625) specifically detects Cytokeratin 19 (UniProt ID: P08727; Molecular weight: 45kDa) and is sold in a convenient trial size to enable initial testing (20 µL) and larger sizes for subsequent scaling up experiments (100 µL and 1 mL).

Conjugation-ready, carrier free format available for antibody clone EP1580Y - ab195872.

Antibody clone EP1580Y is also available pre-conjugated to a variety of labels for your convenience - Alexa Fluor® 488, Alexa Fluor® 647, HRP, Alexa Fluor® 594, Alexa Fluor® 555, Alexa Fluor® 568, APC, PE (ab192643, ab192980, ab193600, ab203443, ab203444, ab203445, ab224980, ab224981).

Cytokeratin 19 (CK19) is a protein marker used to identify epithelial cancers, particularly in the liver, pancreas and gastrointestinal tract, where its presence is often associated with aggressive tumor behaviour and poor prognosis; it is considered a valuable tool for diagnosing and assessing the potential aggressiveness of certain cancers, particularly when positive staining is observed in tumor cells.

**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**

| | |
|---|---|
| | Cytokeratin 19 (CK19) also known as cytokeratine 19 keratin 19 (KRT19) or CK19 is a type of intermediate filament found in epithelial cells. It serves as an essential component of the cytoskeleton. CK19 weighs approximately 40 kDa and is broadly expressed in simple epithelial tissues including liver intestine and various glandular epithelial cells. As a cytokeratin marker it often appears in combination with others like cytokeratin 17 in certain tissue types helping to maintain the structural integrity of cells. |
| **Biological function summary** | CK19 plays a role in maintaining the cytoskeletal framework that provides mechanical support and helps control cell size and shape. It is not part of a large protein complex but works closely with other cytokeratins to ensure the stability and resilience of epithelial tissues. The A53-B/A22.26 positive staining is often used to confirm its presence in clinical histopathology. |
| **Pathways** | CK19 connects to cellular processes especially involving the keratinization and epithelial cell differentiation pathways. It interacts with other cytokeratins including BA16 and KR17 to facilitate these processes. This interaction aids in modulating the dynamics of cytoskeletal rearrangement during cell movement division and differentiation. |
| **Associated diseases and disorders** | CK19 overexpression is linked with certain cancers notably hepatocellular carcinoma and breast cancer. It can serve as a prognostic marker in these diseases often in conjunction with other markers like CK17. The involvement of CK19 in the epithelial-mesenchymal transition (EMT) process connects it to the progression and aggressiveness of tumors facilitated by interactions with proteins involved in EMT pathways. |

## 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.

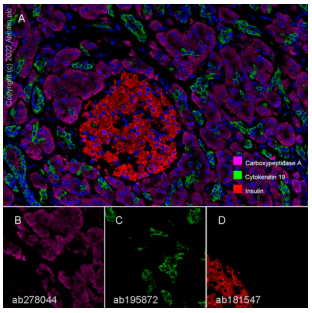
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We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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

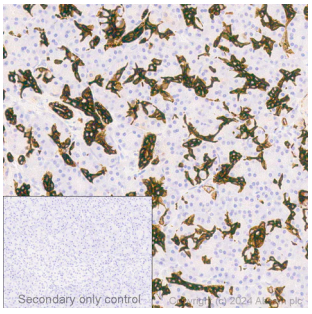
Full details and terms and conditions can be found here:
Terms & Conditions.

## 30 product images




### Multiplex immunohistochemistry - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

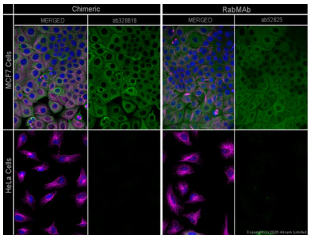
Fluorescence multiplex immunohistochemical analysis of the human pancreas (Formalin/PFA-fixed paraffin-embedded sections). Panel A: merged staining of anti-Carboxypeptidase A (ab278044, magenta; Opal™690), anti-Cytokeratin 19 (ab195872, green; Opal™520) and anti-Insulin (ab181547, red; Opal™570) on human pancreas. Panel B: anti-Carboxypeptidase A stained on acinar cells. Panel C: anti-Cytokeratin 19 stained on centroacinar cells and ducts. Panel D: anti-Insulin stained on beta cells. Opal Polymer HRP Ms + Rb was used as a secondary antibody. The section was incubated in three rounds of staining: in the order of ab278044 at 1/4000 dilution (0.135 µg/ml), ab195872 at 1/8000 dilution (0.127 µg/ml), and ab181547 at 1/20000 dilution (0.053 µg/ml) for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system. The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins. DAPI (blue) was used as a nuclear counter stain. This data was developed using ab195872, the same antibody clone in a different buffer formulation.




### Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Immunohistochemical analysis of formalin fixed paraffin embedded human pancreas labelling Cytokeratin 19 with ab52625 at a concentration of 0.1µg/ml. The immunostaining was performed on a Leica Biosystems BOND® RX instrument with a Bond™ Polymer Refine Detection kit. Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution 2) for 20mins. ab52625 anti-Cytokeratin 19 antibody [EP1580Y] was incubated for 15mins at room temperature. Sections were counterstained with Hematoxylin. Image inset shows absence of staining in secondary antibody only control.

Customers are encouraged to optimise antigen retrieval conditions, antibody concentration, incubation times and temperature for best results in their own IHC assay workflow (automated and manual).




### Immunocytochemistry/ Immunofluorescence - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

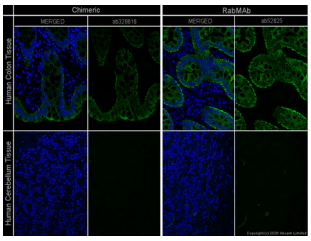
Cytokeratin 19 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cytokeratin 19 antibody

Immunofluorescent analysis of 100% methanol-fixed, 0.1% TritonX-100 permeabilized MCF7 and HeLa cells labelling Cytokeratin 19 with ab328616 at 1.0 µg/ml dilution, followed by ab150133 Donkey Anti-Goat IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 dilution (Green).

Left four panels: Goat chimeric ab328616 [EP1580Y] staining KRT19 in MCF7 cells (positive) and HeLa cells (negative). The cells were fixed with 100% methanol (5 min), permeabilized with 0.1% PBS-Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal donkey serum/0.3M

glycine in 0.1%PBS-Tween for 1h. The cells were then incubated for 2 hours at room temperature with ab328616 at 1 µg/ml (shown in green) and ab7291, Anti-alpha Tubulin antibody [DM1A] - Loading Control (shown in pseudocolour magenta). Cells were then incubated with ab150133, Donkey Anti-Goat IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution and ab150108, Donkey Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed at 1/1000 dilution. Nuclear DNA was labeled with DAPI (shown in blue). Image was acquired with a high-content analyser (Operetta CLS, Revvity) and a maximum intensity projection of confocal sections is shown.

Right four panels: Side-by-side testing with the original rabbit version of the same clone, ab52625 (Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker).




## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Cytokeratin 19 antibody

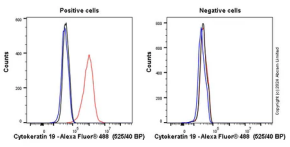
Immunohistochemical analysis of paraffin-embedded Human Colon Tissue and Human Cerebellum Tissue labeling Cytokeratin 19 with ab328616 at 1 µg/ml dilution, followed by ab150133 Donkey Anti-Goat IgG H&L (Alexa Fluor® 488) preadsorbed at 1:1000 dilution.

Left four panels: Goat chimeric ab328616 staining KRT19 [EP1580Y] in sections of formalin-fixed paraffin-embedded human colon (positive) and human cerebellum (negative). Performed on a Leica BOND.

The section was pre-treated using heat mediated antigen retrieval with EDTA (pH9.0) for 40 minutes. The section was then incubated at room temperature for 1 hour with ab328616 at 1/500 dilution, and then incubated for 1 hour with ab150133, Donkey Anti-Goat IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution (shown in green). Nuclear DNA was labelled with DAPI (shown in blue). The section was then mounted using Dako Fluorescence Mounting Medium®. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

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

Right four panels: Side-by-side testing with the original rabbit version of the same clone, ab52625 (Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker).




## Flow Cytometry (Intracellular) - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Flow Cytometry (Intracellular) staining using rabbit Anti-Cytokeratin 19 antibody

Flow cytometry overlay histogram showing MCF7 positive cells (left) and SH-SY5Y negative cells (right) stained with ab52625 (red line). The cells were fixed with 4% formaldehyde (10 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 (ab52625) (1x $10^6$ in 100µl at 0.04µg/ml (1/50,000)) for 30min at 22°C.

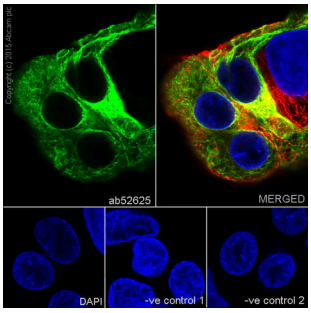
The secondary antibody Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed was incubated at 1/4000 for 30min at 22°C

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

sample (blue line) was also used as a control.

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

This antibody gave a positive signal in MCF7 Fixed with 80% methanol (5 min) / permeabilised with 0.1% PBS-Triton X-100 for 15 min under the same conditions.

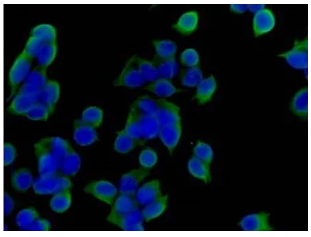



## Immunocytochemistry/ Immunofluorescence - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cytokeratin 19 antibody

Immunocytochemistry/Immunofluorescence analysis of HepG2 (human liver hepatocellular carcinoma cell line) cells labelling Cytokeratin 19 (green) with purified ab52625 at 1/500. Cells were fixed with 4% Paraformaldehyde and permeabilized with 0.1% Triton X-100. ab150077, Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000) was used as the secondary antibody. Cells were counter-stained with ab7291, anti-Tubulin (mouse mAb) at 1/1000 followed by ab150120 Alexa Fluor® 594 goat anti-mouse secondary (1/1000). Nuclei were counterstained with DAPI (blue). For negative control 1, rabbit primary antibody and anti-mouse secondary antibody (ab150120) were used. For negative control 2, ab7291 (mouse primary antibody) was used followed by anti-rabbit secondary antibody (ab150077).

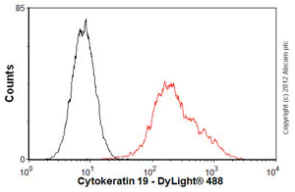
Alexa Fluor® 488 (ab192643) and Alexa Fluor® 647 (ab192980) conjugated versions are available for this clone.



## Immunocytochemistry/ Immunofluorescence - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cytokeratin 19 antibody

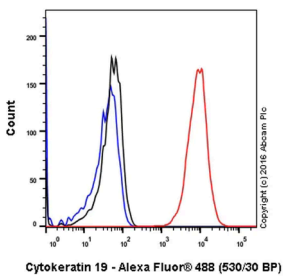
Immunofluorescent staining of MCF-7 cells (fixed in 4% PFA, permeabilized with 0.1% Triton X 100) using purified ab52625 at a dilution of 1/200. An Alexa Fluor® 488 goat anti-rabbit antibody was used as the secondary at a dilution of 1/200 and the cells were counter stained with DAPI.




## Flow Cytometry (Intracellular) - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Flow Cytometry (Intracellular) staining using rabbit Anti-Cytokeratin 19 antibody

Overlay histogram showing HeLa (human epithelial cell line from cervix adenocarcinoma) cells stained with unpurified ab52625 (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 (ab52625, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-rabbit IgG (H+L) (ab96899) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (1µg/1x$10^6$ cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in HeLa cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.



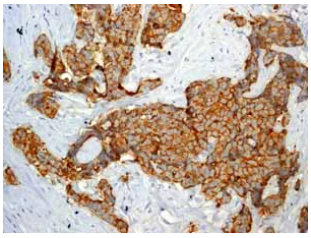

## Flow Cytometry (Intracellular) - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Flow Cytometry (Intracellular) staining using rabbit Anti-Cytokeratin 19 antibody

ab52625 staining Cytokeratin 19in the human cell line MCF-7 (human breast carcinoma) by intracellular flow cytometry. Cells were fixed with 4% paraformaldehyde, permeabilized with 90% methanol and the sample was incubated with the primary antibody at a dilution of 1/80. A goat anti rabbit IgG (Alexa Fluorr® 488) at a dilution of 1/2000 was used as the secondary antibody. Isoytype control: Rabbit monoclonal IgG (Black)

Unlabelled control: Cell without incubation with primary antibody and secondary antibody (Blue).

Alexa Fluorr® 488 (ab192643) and Alexa Fluorr® 647 (ab192980) conjugated versions are available for this clone.

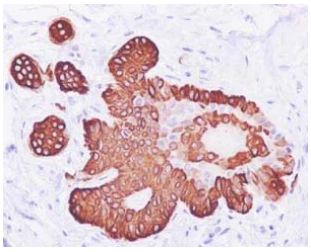


## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Cytokeratin 19 antibody

Unpurified ab52625 showing positive staining in Breast carcinoma tissue.

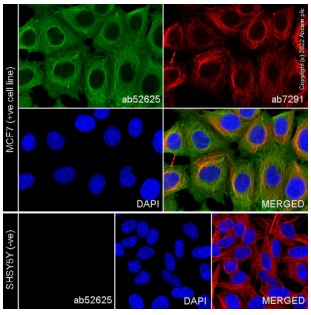
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Cytokeratin 19 antibody

Immunohistochemical staining of paraffin-embedded human skin with purified ab52625 at a dilution of 1/400. A pre-diluted HRP polymer for rabbit/mouse IgG was used as the secondary antibody and the sample was counter-stained with hematoxylin. Antigen retrieval was perfomed using Tris-EDTA buffer, pH 9.0. PBS was used instead of the primary antibody as the negative control, and is shown in the inset.

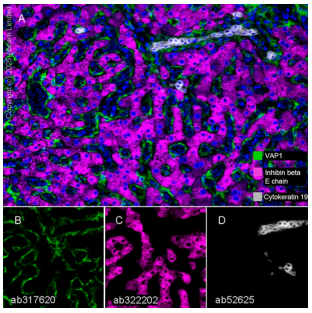



## Immunocytochemistry/ Immunofluorescence - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cytokeratin 19 antibody

ab52625 staining KRT19 in MCF7 cells, with negative expression in SHSY5Y cells. The cells were fixed with 100% methanol (5 min), permeabilised 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 overnight at +4°C with ab52625 at 2 µg/ml and ab7291, Mouse monoclonal [DM1A] to alpha Tubulin at 0.5 µg/ml. Cells were then incubated with ab150081, Goat polyclonal

Secondary Antibody to Rabbit IgG - H&L (Alexa Fluor® 488), pre-adsorbed at 1/1000 dilution (shown in green) and ab150119, Goat polyclonal Secondary Antibody to Mouse IgG - H&L (Alexa Fluor® 647), pre-adsorbed at 1/1000 dilution (shown in red). Nuclear DNA was labelled with DAPI (shown in blue). Image was acquired with a confocal microscope (Leica-Microsystems TCS SP8) and a single confocal section is shown. This product also work with 4% formaldehyde (10 min) fixation under the same testing conditions.




## Multiplex immunohistochemistry - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Multiplex immunohistochemistry staining of Human liver tissue using rabbit Anti-Cytokeratin 19 antibody

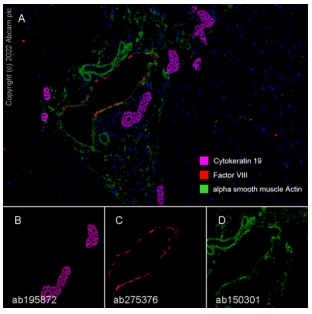
Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded human liver tissue staining Carboxypeptidase A with ab317620 at a 1/1000 dilution, ab322202 anti-Inhibin beta E chain used at 1/2000 dilution and ab52625 anti-Cytokeratin 19 used at a 1/6000 dilution. Opal Polymer HRP Ms + Rb was used as a secondary antibody.

Panel A: merged staining of anti-VAP1 (green; Opal™520), anti-Inhibin beta E chain (magenta; Opal™690) and anti-Cytokeratin 19 (gray; Opal™570) on human liver. Panel B: anti-VAP1 staining endothelium in human liver.
Panel C: anti-Inhibin beta E chain staining hepatocytes in human liver.
Panel D: anti-Cytokeratin 19 staining branch of bile ducts in human liver.
Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab317620, ab322202 and ab52625 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

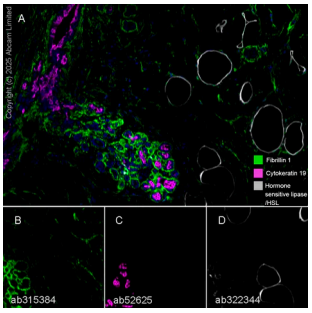
The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.




## Multiplex immunohistochemistry - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Fluorescence multiplex immunohistochemical analysis of human liver tissue (formalin-fixed paraffin-embedded section). Panel A shows merged staining of ab195872 anti-Cytokeratin 19 stained on branch of bile ducts (magenta; Opal™690) at 1:8000 ( 0.127 µg/ml) [Panel B], ab275376 anti-Factor VIII stained on endothelial cells (red; Opal™570) at 1:1000 ( 0.457 µg/ml) [Panel C], and ab150301 anti-alpha smooth muscle Actin stained on smooth muscles (green; Opal™520) at 1:200 ( 0.14 µg/ml) [Panel C] on human liver. DAPI was used as a nuclear counter stain. Followed by Opal Polymer HRP Ms + Rb secondary. The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope. The section was incubated in three rounds of staining: in the order of ab195872 for 30 mins, ab275376 for 30 mins and ab150301 for 10 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins was used.  This data was developed using ab195872, the same antibody clone in a different buffer formulation.




## Multiplex immunohistochemistry - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Multiplex immunohistochemistry staining of Human breast tissue using rabbit Anti-Cytokeratin 19 antibody

Immunohistochemistry analysis of Formalin/PFA-fixed paraffin-embedded sections Human breast tissue labelling Fibrillin 1 with ab315384 at 1:100 dilution (B), Cytokeratin 19 with ab52625 at 1:6000 dilution (C) and Hormone sensitive lipase/HSL with ab322344 at 1:2000 dilution (D). Opal Polymer HRP Ms + Rb was used as a secondary antibody, and DAPI was used for a nuclear counter stain. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.

Panel A: merged staining of anti-Fibrillin 1 (green; Opal™570), anti-Cytokeratin 19 (magenta; Opal™690) and anti-Hormone sensitive lipase/HSL (gray; Opal™570) on human breast.

Panel B: anti-Fibrillin 1 staining stromal connective tissue in human breast.

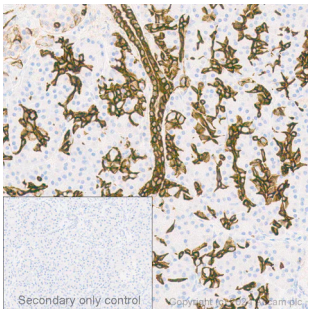
Panel C: ant-Cytokeratin 19 staining epithelium in human breast.

Panel D: ant-Hormone sensitive lipase/HSL staining adipocytes in human breast.

Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab315384, ab52625 and ab322344 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

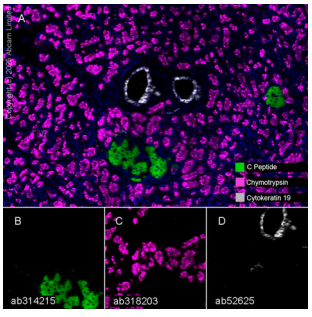
The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.




## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Immunohistochemical analysis of formalin fixed paraffin embedded human pancreas labelling Cytokeratin 19 with ab52625 at a concentration of 0.1µg/ml. The immunostaining was performed on a Ventana DISCOVERY ULTRA (Roche Tissue Diagnostics) instrument with a OptiView DAB IHC Detection Kit. Heat mediated antigen retrieval was performed with DISCOVERY cell conditioning solution (CC1) 100°C, pH8.5 for 32mins. ab52625 anti-Cytokeratin 19 antibody [EP1580Y] was incubated for 16mins at 37°C. Sections were counterstained with Hematoxylin II. Image inset shows absence of staining in secondary antibody only control.

Customers are encouraged to optimise antigen retrieval conditions, antibody concentration, incubation times and temperature for best results in their own IHC assay workflow (automated and manual).




## Multiplex immunohistochemistry - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Multiplex immunohistochemistry staining of Rat pancreas using rabbit Anti-Cytokeratin 19 antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded ® tissue staining C Peptide with ab314215 at a 1/500 dilution, ab318203 anti-Chymotrypsin used at 1/6000

dilution and ab52625 anti-Cytokeratin 19 used at a 1/6000 dilution.

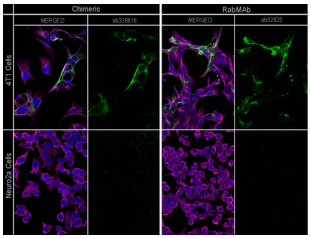
Opal Polymer HRP Ms + Rb was used as a secondary antibody.

Panel A: merged staining of anti-C Peptide (green; Opal™520), anti-Chymotrypsin (magenta; Opal™690) and anti-Cytokeratin 19 (gray; Opal™570) on rat pancreas.
Panel B: anti-C Peptide staining beta cells in rat pancreas.
Panel C: anti-Chymotrypsin staining exocrine gland in rat pancreas.
Panel D: anti-Cytokeratin 19 staining pancreatic duct in rat pancreas.
Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab314215, ab318203 and ab52625 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



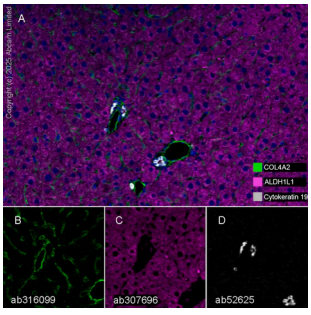

## Immunocytochemistry/ Immunofluorescence - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cytokeratin 19 antibody

Immunofluorescent analysis of 100% methanol-fixed, 0.1% TritonX-100 permeabilized 4T1 and Neuro2a cells labelling Cytokeratin 19 with ab328616 at 1.0 µg/ml dilution, followed by ab150133 Donkey Anti-Goat IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 dilution (Green).

Left four panels: Goat chimeric ab328616 [EP1580Y] staining KRT19 in 4T1 cells (positive) and Neuro2a cells (negative). The cells were fixed with 100% methanol (5 min), permeabilized with 0.1% PBS-Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal donkey serum/0.3M glycine in 0.1%PBS-Tween for 1h. The cells were then incubated for 2 hours at room temperature with ab328616 at 1 µg/ml (shown in green) and ab7291, Anti-alpha Tubulin antibody [DM1A] - Loading Control (shown in pseudocolour magenta). Cells were then incubated with ab150133, Donkey Anti-Goat IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution and ab150108, Donkey Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed at 1/1000 dilution. Nuclear DNA was labeled with DAPI (shown in blue). Image was acquired with a high-content analyser (Operetta CLS, Revvity) and a maximum intensity projection of confocal sections is shown.

Right four panels: Side-by-side testing with the original rabbit version of the same clone, ab52625 (Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker).




## Multiplex immunohistochemistry - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Multiplex immunohistochemistry staining of Rat liver using rabbit Anti-Cytokeratin 19 antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded rat liver tissue staining COL4A2 with ab316099 at a 1/500 dilution, ab307696 anti-ALDH1L1 used at 1/5000 dilution and ab52625 anti-Cytokeratin 19 used at a 1/6000 dilution.

Panel A: merged staining of anti-COL4A2 (green; Opal™520), anti-ALDH1L1 (magenta; Opal™690) and anti-Cytokeratin 19 (grey; Opal™570) on rat liver.

Panel B: anti-COL4A2 staining endothelium in rat liver.
Panel C: anti-ALDH1L1 staining hepatocytes in rat liver.
Panel D: anti-Cytokeratin 19 staining branch of bile ducts in rat liver.

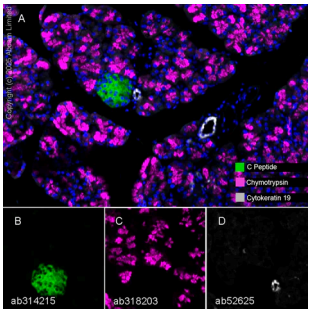
Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab316099, ab307696 and ab52625 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.

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## Multiplex immunohistochemistry - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Multiplex immunohistochemistry staining of Mouse pancreas tissue using rabbit Anti-Cytokeratin 19 antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded ™ tissue staining C Peptide with ab314215 at a 1/500 dilution, ab318203 anti-Chymotrypsin used at 1/6000 dilution and ab52625 anti-Cytokeratin 19 used at a 1/6000 dilution.

Opal Polymer HRP Ms + Rb was used as a secondary antibody.

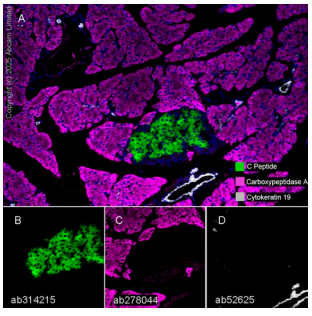
Panel A: merged staining of anti-C Peptide (green; Opal™520), anti-Chymotrypsin (magenta; Opal™690) and anti-Cytokeratin 19 (grey; Opal™570) on mouse pancreas.
Panel B: anti-C Peptide staining beta cells in mouse pancreas.
Panel C: anti-Chymotrypsin staining exocrine gland in mouse pancreas.
Panel D: anti-Cytokeratin 19 staining pancreatic duct in mouse pancreas.
Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab314215, ab318203 and ab52625 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.

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## Multiplex immunohistochemistry - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Multiplex immunohistochemistry staining of Rat pancreas tissue using rabbit Anti-Cytokeratin 19 antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded rat pancreas tissue staining C Peptide with ab314215 at a 1/500 dilution, ab278044 anti-Carboxypeptidase A used at 1/4000 dilution and ab52625 anti-Cytokeratin 19 used at a 1/6000 dilution.

Opal Polymer HRP Ms + Rb was used as a secondary antibody.

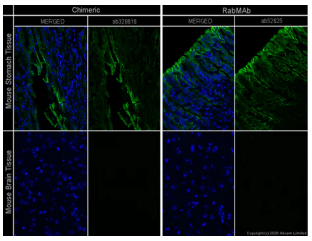
Panel A: merged staining of anti-C Peptide (green; Opal™520), anti-Carboxypeptidase A (magenta; Opal™690) and anti-Cytokeratin 19 (grey; Opal™570) on rat pancreas.
Panel B: anti-C Peptide staining beta cells in rat pancreas.
Panel C: anti-Carboxypeptidase A staining exocrine gland in rat pancreas.
Panel D: anti-Cytokeratin 19 staining pancreatic duct in rat pancreas.
Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab314215, ab278044 and ab52625 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.

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## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Cytokeratin 19 antibody

Immunohistochemical analysis of paraffin-embedded Mouse Stomach Tissue and Mouse Brain Tissue labeling Cytokeratin 19 with ab328616 at 1 µg/ml dilution, followed by ab150133 Donkey Anti-Goat IgG H&L (Alexa Fluor® 488) preadsorbed at 1:1000 dilution.

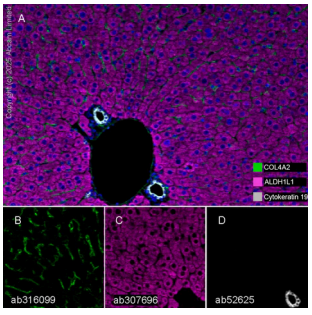
Left four panels: Goat chimeric ab328616 staining KRT19 [EP1580Y] in sections of formalin-fixed paraffin-embedded mouse stomach (positive) and mouse brain (negative). Performed on a Leica BOND.

The section was pre-treated using heat mediated antigen retrieval with EDTA (pH9.0) for 40 minutes. The section was then incubated at room temperature for 1 hour with ab328616 at 1/500 dilution, and then incubated for 1 hour with ab150133, Donkey Anti-Goat IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution (shown in green). Nuclear DNA was labelled with DAPI (shown in blue). The section was then mounted using Dako Fluorescence Mounting Medium®. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

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

Right four panels: Side-by-side testing with the original rabbit version of the same clone, ab52625 (Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker).

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## Multiplex immunohistochemistry - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Multiplex immunohistochemistry staining of Mouse liver using rabbit Anti-Cytokeratin 19 antibody

Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded mouse liver tissue staining COL4A2 with ab316099 at a 1/500 dilution, ab307696 anti-ALDH1L1 used at 1/5000 dilution and ab52625 anti-Cytokeratin 19 used at a 1/6000 dilution.

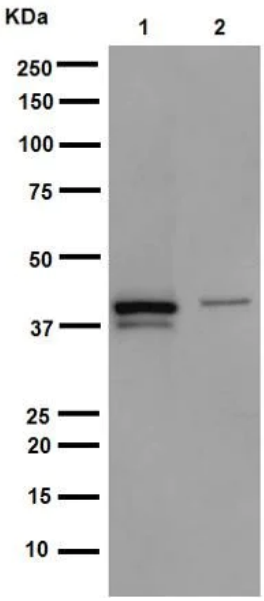
Panel A: merged staining of anti-COL4A2 (green; Opal™520), anti-ALDH1L1 (magenta; Opal™690) and anti-Cytokeratin 19 (grey; Opal™570) on mouse liver.
Panel B: anti-COL4A2 staining endothelium in mouse liver.
Panel C: anti-ALDH1L1 staining hepatocytes in mouse liver.
Panel D: anti-Cytokeratin 19 staining branch of bile ducts in mouse liver.

Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab316099, ab307696 and ab52625 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.




## Western blot - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Blocking buffer: 5% NFDM/TBST
Dilution buffer: 5% NFDM/TBST

All lanes:
Western blot - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625) at 1/45000 dilution

Lane 1:
HepG2 (liver hepatocellular carcinoma cell line) cell lysate at 20 µg

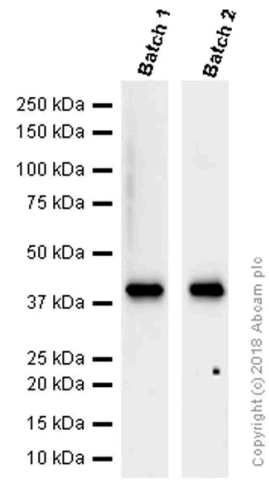
Lane 2:
NIH/3T3 (mouse embryo fibroblast cell line) cell lysate at 20 µg

Secondary

All lanes:
HRP goat anti-rabbit (H+L) at 1/1000 dilution

Predicted band size: 44 kDa

Observed band size: 40 kDa

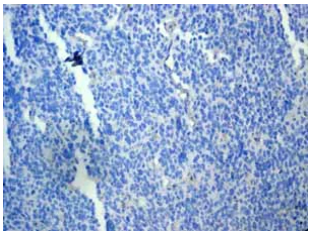



## Western blot - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Western blot staining using rabbit Anti-Cytokeratin 19 antibody

Different batches of ab52625 were tested on HepG2 (Human hepatocellular carcinoma epithelial cell) lysate at 0.2 µg/ml. 15 µg of lysate was loaded in each lane. Bands observed at 40 kDa.
All lanes:
Western blot - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

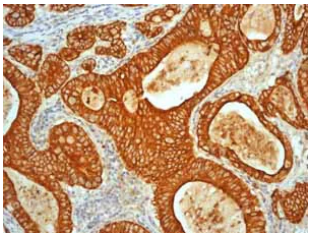
Predicted band size: 44 kDa



## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Unpurified ab52625 showing negative staining in Glioma tissue.

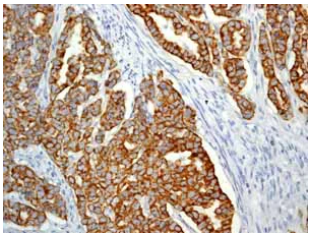
Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Unpurified ab52625 showing positive staining in Gastric adenocarcinoma tissue.

Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Unpurified ab52625 showing positive staining in Endometrial carcinoma tissue.

Perform heat mediated antigen retrieval before commencing with IHC staining protocol.

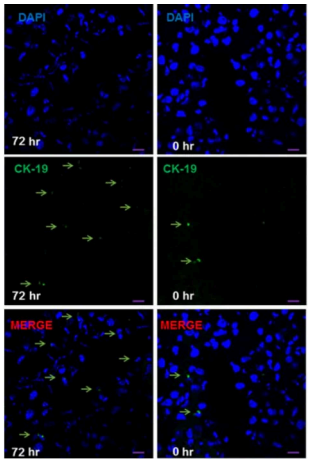
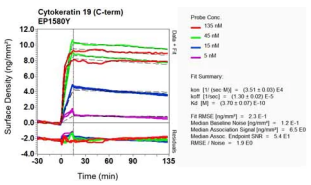



Image from Wang et al, J Cell Mol Med 2014 Sep;18(9):1720-6. Fig 5, doi:10.1111/jcmm.12355.

## Immunocytochemistry/ Immunofluorescence - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

Cytokeratin 19 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cytokeratin 19 antibody

This data was produced using unconjugated parent ab52625. Immunocytochemistry analysis of mouse hepatic stem cells cells labelling CK-19 with ab52625 at 1/50 dilution.




## OI-RD Scanning - Anti-Cytokeratin 19 antibody [EP1580Y] - Cytoskeleton Marker (ab52625)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD

values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

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