abcam

# ab222406

# Anti-Bcr antibody [EPR22062]

Recombinant | RabMAb

## 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** | EPR22062 |
| **Purification technique** | Affinity purification Protein A |
| **Specificity** | IHC is not recommended for human. |
| **Concentration** | 0.512 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## IHC-P

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | 1/500 |
| **Notes** | |

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

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 1/500 |
| **Notes** | Perform heat-mediated antigen retrieval before commencing with IHC staining protocol. |

### Expected

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

## IP

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/30 |
| **Notes** | - |

### Expected

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

## WB

### Tested

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | 1/1000 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/1000 |

| | |
|---|---|
| **Notes** | - |

### Expected

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

## Flow Cyt (Intra)

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/500 |
| **Notes** | - |

### Expected

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

## Target data

See full target information BCR

**Function**

Protein with a unique structure having two opposing regulatory activities toward small GTP-binding proteins. The C-terminus is a GTPase-activating protein (GAP) domain which stimulates GTP hydrolysis by RAC1, RAC2 and CDC42. Accelerates the intrinsic rate of GTP hydrolysis of RAC1 or CDC42, leading to down-regulation of the active GTP-bound form (PubMed:17116687, PubMed:1903516, PubMed:7479768). The central Dbl homology (DH) domain functions as guanine nucleotide exchange factor (GEF) that modulates the GTPases CDC42, RHOA and RAC1. Promotes the conversion of CDC42, RHOA and RAC1 from the GDP-bound to the GTP-bound form (PubMed:23940119, PubMed:7479768). The amino terminus contains an intrinsic kinase activity (PubMed:1657398). Functions as an important negative regulator of neuronal RAC1 activity (By similarity). Regulates macrophage functions such as CSF1-directed motility and phagocytosis through the modulation of RAC1 activity (PubMed:17116687). Plays a major role as a RHOA GEF in keratinocytes being involved in focal adhesion formation and keratinocyte differentiation (PubMed:23940119).

## 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

**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** | The Bcr protein also known as breakpoint cluster region protein plays an important role in cellular signaling. It has a molecular mass of approximately 160 kDa and is expressed in many cell types such as hematopoietic cells. Bcr functions as a GTPase-activating protein (GAP) for p21rac and other small GTP-binding proteins. This activity influences cellular processes such as growth and differentiation. Bcr is also known for its involvement in the formation of the Bcr-Abl fusion protein an important factor in certain leukemias. |
| **Biological function summary** | The Bcr protein acts within cells to regulate signal transduction and cytoskeletal organization. It is part of the pre-B cell receptor (pre-BCR) signaling complex influencing B-cell development. Its GAP activity is important for the regulation of small GTPases impacting cell migration and adhesion. Alterations in Bcr function |

| | |
|---|---|
| | can affect cellular responses such as apoptosis making it a focus for research into targeted therapies for hematological conditions. |
| **Pathways** | The Bcr protein is an important player in signaling pathways involving the Ras superfamily of small GTPases. It is notably involved in the Rho GTPase pathway tied to cytoskeletal dynamics and cell cycle progression. Bcr's interaction with these pathways puts it in relation to proteins like Rac and Cdc42 which are vital for various cellular processes. Disruption in Bcr-associated pathways can lead to aberrant cell growth and metastasis. |
| **Associated diseases and disorders** | Bcr has a well-documented link to certain leukemias particularly chronic myeloid leukemia (CML). The Bcr-Abl fusion protein resulting from the translocation of chromosomes 9 and 22 is central to CML pathology. Additionally Bcr connects with other proteins such as Abl in this disease context. Further disruptions in Bcr signaling can relate to disorders involving immune system dysregulation demonstrating the protein's relevance in both oncology and immunology research. |

## 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**

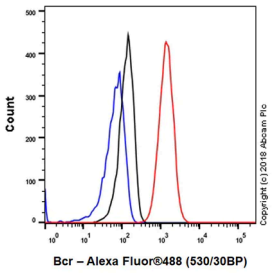
We do not recommend this combination. It is not covered by our product promise.

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.

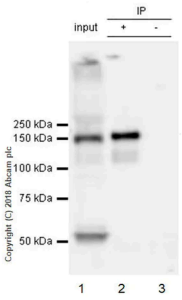
## 8 product images




## Flow Cytometry (Intracellular) - Anti-Bcr antibody [EPR22062] (ab222406)

Bcr Flow Cytometry (Intracellular) staining using rabbit Anti-Bcr antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol-permeabilized K562 (human chronic myelogenous leukemia cell line from bone marrow) cell line labeling Bcr with ab222406 at 1/500 dilution (red) compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabeled control (cells incubated with secondary antibody only) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/2000 dilution was used as the secondary antibody.




## Immunoprecipitation - Anti-Bcr antibody [EPR22062] (ab222406)

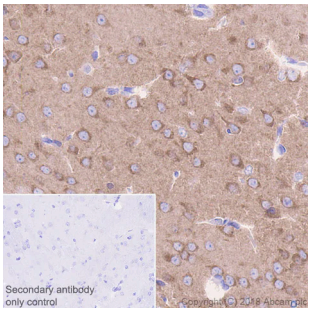
Bcr was immunoprecipitated from 0.35 mg HeLa (human epithelial cell line from cervix adenocarcinoma) whole cell lysate with ab222406 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab222406 at 1/500 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366) was used for detection antibody at 1/1000 dilution.
**Lane 1:** HeLa whole cell lysate 10µg (Input).
**Lane 2:** ab222406 IP in HeLa whole cell lysate (+)
**Lane 3:** Rabbit monoclonal IgG (ab172730) instead of ab222406 in HeLa whole cell lysate (-).

Blocking and dilution buffer and concentration: 5% NFDM/TBST.
Exposure time: 10 seconds.

The 160 kDa and 130 kDa bands are isoforms of BCR (PMID:2494632, PMID:3078961).

All lanes:
Immunoprecipitation - Anti-Bcr antibody [EPR22062] (ab222406)

Predicted band size: 143 kDa

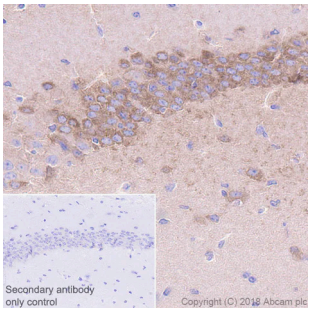



## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Bcr antibody [EPR22062] (ab222406)

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

Immunohistochemical analysis of paraffin-embedded rat cerebrum tissue labeling Bcr with ab222406 at 1/500 dilution, followed by Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) Ready to use. Cytoplasmic staining in rat cerebrum (PMID: 25331951). Counterstained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) Ready to use.

Heat-mediated antigen retrieval using ab208572 (Universal HIER antigen retrieval reagent).



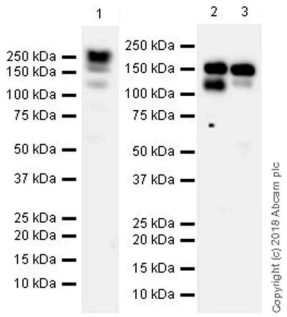

## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Bcr antibody [EPR22062] (ab222406)

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

Immunohistochemical analysis of paraffin-embedded mouse hippocampus tissue labeling Bcr with ab222406 at 1/500 dilution, followed by Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) Ready to use. Cytoplasmic staining in mouse hippocampus (PMID: 25331951). Counterstained with hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) Ready to use.

Heat-mediated antigen retrieval using ab208572 (Universal HIER antigen retrieval reagent).

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## Western blot - Anti-Bcr antibody [EPR22062] (ab222406)

Bcr Western blot staining using rabbit Anti-Bcr antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
The 230/210 kDa band is the BCR-ABL fusion protein in K562 cells (PMID:17684099, PMID:16585609, PMID:12476301). The 160 kDa and 130 kDa bands are isoforms of BCR (PMID:2494632, PMID:3078961).

All lanes:
Western blot - Anti-Bcr antibody [EPR22062] (ab222406) at 1/1000 dilution

Lane 1:
K562 (human chronic myelogenous leukemia cell line from bone marrow) whole lysate at 20 µg

Lane 2:
PC-12 (rat adrenal gland pheochromocytoma cell line) whole lysate at 20 µg

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

Secondary

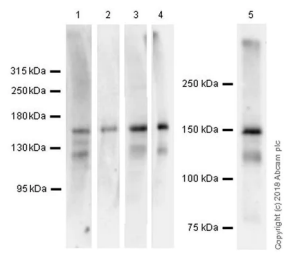
All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 143 kDa

Observed band size: 130 kDa, 160 kDa, 210 kDa, 230 kDa

Exposure time: 3min

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## Western blot - Anti-Bcr antibody [EPR22062] (ab222406)

Bcr Western blot staining using rabbit Anti-Bcr antibody

**Exposure time :** Lanes 1 and 2: 3 minutes; Lanes 3 and 4: 59 seconds; Lane 3: 81 seconds.
Blocking/Dilution buffer: 5% NFDM/TBST.

The 160 kDa and 130 kDa bands are isoforms of BCR (PMID: 2494632, PMID: 3078961).

All lanes:

Western blot - Anti-Bcr antibody [EPR22062] (ab222406) at 1/1000 dilution

Lane 1:
MCF7 (human breast adenocarcinoma cell line) whole lysate at 20 µg

Lane 2:
Human brain lysate at 20 µg

Lane 3:
HepG2 (human liver hepatocellular carcinoma cell line) whole lysate at 20 µg

Lane 4:
Rat brain lysate at 20 µg

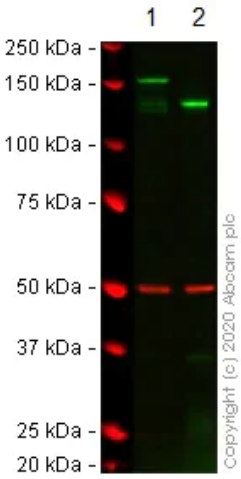
Lane 5:
Human testis lysate at 20 µg

Secondary

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

Predicted band size: 143 kDa

Observed band size: 130 kDa, 160 kDa




## Western blot - Anti-Bcr antibody [EPR22062] (ab222406)

Bcr Western blot staining using rabbit Anti-Bcr antibody

**Lanes 1 - 2:** Merged signal (red and green). Green - ab222406 observed at 150 kDa. Red - loading control, ab7291 (Mouse anti-Alpha Tubulin [DM1A]) observed at 55kDa.
ab222406 was shown to react with BCR in wild-type HEK-293T cells in western blot. The bands observed in BCR CRISPR/Cas9 edited cell line ab266583 (BCR CRISPR/Cas9 edited cell lysate ab257858) below 150kDa may represent truncated forms and cleaved fragments. This has not been investigated further. Wild-type and BCR CRISPR/Cas9 edited HEK-293T cell lysates were subjected to SDS-PAGE. Membranes were blocked in 3% milk in TBS-T (0.1% Tween®) before incubation with ab222406 and ab7291 (Mouse anti-Alpha Tubulin [DM1A]) overnight at 4<sup>&

176;</sup>C at a 1 in 1000 dilution and a 1 in 20000 dilution respectively. Blots were incubated with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Bcr antibody [EPR22062] (ab222406) at 1/1000 dilution

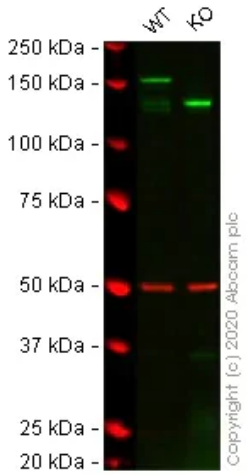
Lane 1:
Wild-type HEK-293T cell lysate at 20 µg

Lane 2:
BCR CRISPR/Cas9 edited HEK-293T cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 143 kDa

Observed band size: 150 kDa




# Western blot - Anti-Bcr antibody [EPR22062] (ab222406)

All lanes:
Western blot - Anti-Bcr antibody [EPR22062] (ab222406) at 1/1000 dilution

Lane 1:
Wild-type HEK-293T cell lysate at 20 µg

Lane 2:
BCR knockout HEK-293T cell lysate at 20 µg

Predicted band size: 143 kDa

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