abcam

ab37647

Anti-RAGE antibody

Anti-RAGE antibody (ab37647) is a rabbit polyclonal antibody detecting RAGE in **Western Blot, Flow Cytometry, ICC/IF**. Suitable for **Cow, Human, Mouse, Rat**.

- Over 80 publications
- Trusted since 2006

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Preservative: 0.1% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine)
Form	Liquid
Clonality	Polyclonal
Immunogen	Synthetic Peptide within Human AGER aa 1-100. The exact immunogen used to generate this antibody is proprietary information. Database link Q15109
Purification technique	Affinity purification Immunogen
Concentration	0.6 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Mouse
Dilution info	1 µg for 10^5 Cells

Notes	Use PBS/EDTA to detach cells to preserve the glycoproteins on the cell surface; do not fix, do not permeabilise. ab171870 - Rabbit polyclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/1000 - 1/5000
Notes	-

Species	Human
Dilution info	1/1000 - 1/5000
Notes	-

Species	Cow
Dilution info	1/1000 - 1/5000
Notes	-

Expected

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

ICC/IF

Tested

Species	Rat

Dilution info	1 µg/mL
Notes	-

Expected

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

Target data

See full target information AGER

Function

Cell surface pattern recognition receptor that senses endogenous stress signals with a broad ligand repertoire including advanced glycation end products, S100 proteins, high-mobility group box 1 protein/HMGB1, amyloid beta/APP oligomers, nucleic acids, histones, phospholipids and glycosaminoglycans (PubMed:27572515, PubMed:28515150, PubMed:34743181, PubMed:35974093, PubMed:24081950). Advanced glycosylation end products are nonenzymatically glycosylated proteins which accumulate in vascular tissue in aging and at an accelerated rate in diabetes (PubMed:21565706). These ligands accumulate at inflammatory sites during the pathogenesis of various diseases including diabetes, vascular complications, neurodegenerative disorders and cancers, and RAGE transduces their binding into pro-inflammatory responses. Upon ligand binding, uses TIRAP and MYD88 as adapters to transduce the signal ultimately leading to the induction of inflammatory cytokines IL6, IL8 and TNFalpha through activation of NF-kappa-B (PubMed:21829704, PubMed:33436632). Interaction with S100A12 on endothelium, mononuclear phagocytes, and lymphocytes triggers cellular activation, with generation of key pro-inflammatory mediators (PubMed:19386136). Interaction with S100B after myocardial infarction may play a role in myocyte apoptosis by activating ERK1/2 and p53/TP53 signaling (By similarity). Contributes to the translocation of amyloid-beta peptide (ABPP) across the cell membrane from the extracellular to the intracellular space in cortical neurons (PubMed:19906677). ABPP-initiated RAGE signaling, especially stimulation of p38 mitogen-activated protein kinase (MAPK), has the capacity to drive a transport system delivering ABPP as a complex with RAGE to the intraneuronal space. Participates in endothelial albumin transcytosis together with HMGB1 through the RAGE/SRC/Caveolin-1 pathway, leading to endothelial hyperpermeability (PubMed:27572515). Mediates the loading of HMGB1 in extracellular vesicles (EVs) that shuttle HMGB1 to hepatocytes by transferrin-mediated endocytosis and subsequently promote hepatocyte pyroptosis by activating the NLRP3 inflammasome (PubMed:34743181). Binds to DNA and promotes extracellular hypomethylated DNA (CpG DNA) uptake by cells via the endosomal route to activate inflammatory responses (PubMed:24081950, PubMed:28515150). Mediates phagocytosis by non-professional phagocytes (NPP) and this is enhanced by binding to ligands including RNA, DNA, HMGB1 and histones (PubMed:35974093). Promotes NPP-mediated phagocytosis of Saccharomyces cerevisiae spores by binding to RNA attached to the spore wall

(PubMed:35974093). Also promotes NPP-mediated phagocytosis of apoptotic cells (PubMed:35974093). Following DNA damage, recruited to DNA double-strand break sites where it colocalizes with the MRN repair complex via interaction with double-strand break repair protein MRE11 (By similarity). Enhances the endonuclease activity of MRE11, promoting the end resection of damaged DNA (By similarity). Promotes DNA damage repair in trophoblasts which enhances trophoblast invasion and contributes to placental development and maintenance (PubMed:33918759). Protects cells from DNA replication stress by localizing to damaged replication forks where it stabilizes the MCM2-7 complex and promotes faithful progression of the replication fork (PubMed:36807739). Mediates the production of reactive oxygen species (ROS) in human endothelial cells (PubMed:25401185).

Storage

Shipped at conditions	Blue Ice
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-RAGE antibody (ab37647) is a rabbit polyclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunocytochemistry/immunofluorescence (ICC/IF) in Cow, Human, Mouse, Rat samples.

What is the molecular weight of RAGE?
Anti-RAGE (ab37647) specifically detects a band for RAGE (UniProt: Q15109) at a molecular weight of 42kDa.

Trusted by the scientific community
Anti-RAGE (ab37647) was first used in a scientific publication in 2006 and has been cited over 80 times in peer-reviewed journals.

Reviewed by scientists
Anti-RAGE (ab37647) has over 10 independent reviews from customers.

Supplementary info

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

Activity summary	RAGE also known as Receptor for Advanced Glycation End-products is a multi-ligand cell surface receptor with a molecular weight of approximately 45 kDa. It belongs to the immunoglobulin superfamily consisting of three extracellular immunoglobulin-like domains a transmembrane domain and a cytoplasmic tail. RAGE is widely expressed in various tissues throughout the body with high expression levels in the lungs heart and cells of the nervous system. The receptor can interact with several ligands such as advanced glycation end-products (AGEs) amyloid beta and S100/calgranulin proteins facilitating signal transduction into the cells.
Biological function summary	RAGE functions in the immune and inflammatory response where it mediates cell signaling that leads to cellular activation and the release of pro-inflammatory cytokines. It acts as part of complexes with different proteins contributing to cellular processes such as proliferation and migration. RAGE also plays roles in the regulation of oxidative stress and apoptosis impacting cellular health and survival. Researchers employ tools like 'anti-RAGE' antibodies and 'RAGER ELISA' assays to measure and study RAGE expression levels and its interactions in various experimental setups.
Pathways	RAGE is significantly involved in the NF-kB pathway and the MAPK signaling cascade. Its activation can lead to the release of NF-kB a transcription factor that plays an essential role in immune and inflammatory responses. RAGE interacts with proteins such as p38 MAPK leading to a cascade of events that regulate inflammation and stress responses. The signaling pathways involving RAGE are important in maintaining cell homeostasis and responding to cellular stressors and tools like 'anti-RAGE' and 'mouse RAGE' antibodies serve to elucidate these complex pathways further.
Associated diseases and disorders	RAGE has strong associations with chronic diseases like diabetes and Alzheimer's disease. In diabetes RAGE binds to AGEs contributing to inflammation and vascular complications where it often interacts with proteins like iNOS and VEGF. In Alzheimer's disease RAGE is implicated in the accumulation and toxicity of amyloid-beta peptides interacting with proteins such as APP and tau. Understanding RAGE's role in these diseases can aid in developing therapeutic strategies employing reagents such as 'phen RAGE' and 'anti-RAGE' for targeted treatment approaches.

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.

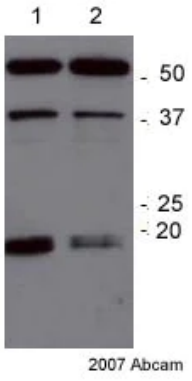
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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6 product images



This image is courtesy of an anonymous customer review

Western blot - Anti-RAGE antibody (ab37647)

RAGE Western blot staining using rabbit Anti-RAGE antibody

The band at 52kDa is a tubulin loading control.
All lanes:
Western blot - Anti-RAGE antibody (ab37647) at 1/500 dilution

Lane 1:
HUVEC whole cell lysate at 20 µg

Lane 2:
EVC304 whole cell lysate at 20 µg

Secondary

All lanes:
HRP conjugated goat anti-rabbit

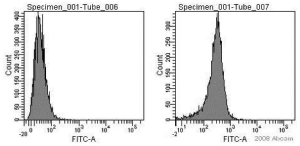
Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 42 kDa

Observed band size: 17 kDa, 40 kDa

Exposure time: 4min

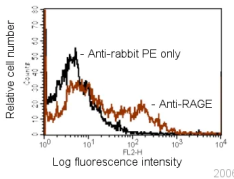


This image is courtesy of an anonymous customer review

Flow Cytometry - Anti-RAGE antibody (ab37647)

RAGE Flow Cytometry staining using rabbit Anti-RAGE antibody

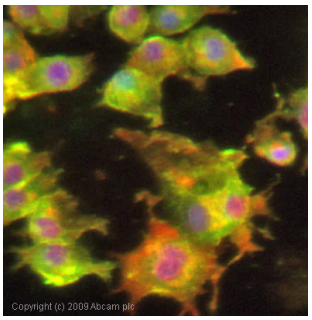
ab37647 staining human Jurkat T cells by Flow Cytometry. The cells were prepared in PBS with 0.2% BSA. The primary antibody diluted 1/100 and incubated with sample for 30 minutes at 0°C. The secondary antibody was Alexa Fluor® 488 conjugated goat polyclonal to rabbit IgG, diluted 1/200.
Specimen tube 006 is negative control



Flow Cytometry - Anti-RAGE antibody (ab37647)

RAGE Flow Cytometry staining using rabbit Anti-RAGE antibody

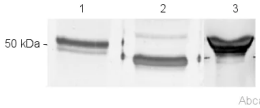
RAW 264.7 cells were stained with anti-RAGE (1ug/million cells) for 1hr at 4 deg C followed by staining with anti-rabbit IgG-PE conjugate. Cells were analyzed by flow cytometry. Unstained cells or cells stained with secondary antibody alone are represented in the background



Immunocytochemistry/ Immunofluorescence - Anti-RAGE antibody (ab37647)

RAGE Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-RAGE antibody

ICC/IF image of ab37647 stained PC12 cells. The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab37647, 1µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-rabbit IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.



Western blot - Anti-RAGE antibody (ab37647)

Bovine RAGE is slightly larger than human and mouse RAGE - 44kDa compared with 42kDa
All lanes:
Western blot - Anti-RAGE antibody (ab37647) at 1/2000 dilution

Lane 1:
Bovine lung extract

Lane 2:
Mouse lung extract

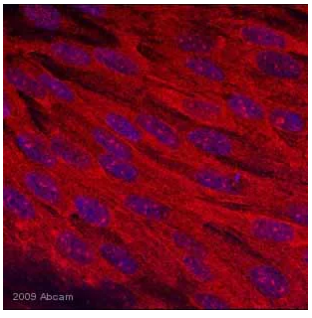
Lane 3:
HeLa cells expressing human soluble RAGE

Secondary

All lanes:
anti-rabbit IgG alkaline phosphatase conjugate

Predicted band size: 42 kDa

Observed band size: 42 kDa



Immunocytochemistry/ Immunofluorescence - Anti-RAGE antibody (ab37647)

ab37647 at a 1/100 dilution staining RAGE in bovine endothelial cells by Immunocytochemistry/ Immunofluorescence. Fixed in PFA, permeabilized with Triton X-100. Blocked using 10% serum for 20 minutes at room temperature. Secondary used at 1/200 polyclonal Goat snti-rabbit conjugated to Alexa Fluor 568 (red). Nuclear staining (blue).

This image was kindly supplied by Dr Fabien Gosselet by customer review

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