abcam

ab179448

Anti-AKR1C1/AKR1C2 antibody [EPR11542]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 50% Tissue culture supernatant, 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	EPR11542
Purity	Tissue culture supernatant
Specificity	AKR1C1 and AKR1C2 (Swiss Prot: Q04828/P52895) sequences are 98% identical

Reactivity data

IP

Tested

Species	Human
Dilution info	1/10 - 1/100
Notes	-

Not recommended

Species	Recombinant full length protein - Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

Species	Recombinant full length protein - Human
Dilution info	1/1000
Notes	-

IHC-P

Not recommended

Species	Human, Recombinant full length protein - Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/500
Notes	-

Not recommended

Species	Recombinant full length protein - Human
Dilution info	-

Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/10 - 1/100
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Not recommended

Species	Recombinant full length protein - Human
Dilution info	-
Notes	-

Target data

See full target information AKR1C1

Function	Cytosolic aldo-keto reductase that catalyzes NADPH-dependent reduction of ketosteroids to hydroxysteroids. Displays broad substrate specificity with distinct positional and stereochemistry, primarily generating 20alpha-hydroxysteroids, but also 3alpha/beta- and 17beta-hydroxysteroids (PubMed:10998348, PubMed:11013348, PubMed:14672942, PubMed:19218247, PubMed:11995921, PubMed:12604236). Involved in neurosteroid metabolism. Reduces 5alpha-dihydrodeoxycorticosterone (5-alpha-DHDOC) to neuroactive steroid 3alpha,5alpha-tetrahydrodeoxycorticosterone (3alpha,5alpha-THDOC) known to alter neural excitability via allosteric activation of gamma-aminobutyric acid type A (GABAAR) receptors. Inactivates 3alpha-hydroxy-5alpha-pregnan-20-one (3alpha,5alpha-THP) into less potent neurosteroid 3alpha,20alpha-dihydroxy-5alpha-pregnane (PubMed:11995921, PubMed:12604236). Catalyzes the reduction of progesterone to less potent progestogen (20S)-hydroxypregn-4-en-3-one likely regulating ligand availability for progesterone receptors (PubMed:10998348, PubMed:11013348, PubMed:12604236). In androgen catabolism, may predominantly act as a phase I enzyme by introducing a hydroxyl group prior to conjugation. It can nevertheless participate in the alternative phase II pathway by directly reducing sulfate- or glucuronide-conjugated androgens (PubMed:19218247). In vitro can efficiently catalyze bidirectional conversion between ketosteroids and hydroxysteroids using NADPH/NADP(+) or NADH/NAD(+) as cofactors. In vivo however, the reductase activity prevails since the major reducing cofactor NADPH inhibits NAD(+)-dependent oxidase activity (PubMed:14672942).

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 AKR1C1 and AKR1C2 are members of the aldo-keto reductase family. These enzymes also known as dihydrodiol dehydrogenases reduce a variety of substrates including steroids prostaglandins and xenobiotics. AKR1C1 has a molecular mass of approximately 37 kDa while AKR1C2 has a similar but slightly distinct mass. These proteins are expressed in various tissues including the liver prostate and mammary glands where they perform their enzymatic functions.
Biological function summary	The AKR1C1/AKR1C2 enzymes play significant roles in steroid hormone metabolism. They modulate the conversion of active hormones to their inactive forms and vice versa affecting the cellular concentration of these hormones. The proteins do not function as part of a larger complex but influence multiple biochemical processes through their enzymatic actions. Their roles in the

	regulation of sex steroids are important for maintaining normal cellular activity and tissue homeostasis.
Pathways	AKR1C1 and AKR1C2 are involved in intricate steroid hormone signaling and metabolism pathways. They engage with the androgen and estrogen receptor signaling pathways by modulating hormone availability. The interplay with enzymes like 5-alpha reductase and aromatase highlights their role in the balance of active and inactive hormone forms within these pathways. Their function can influence cellular proliferation and differentiation processes within different tissues.
Associated diseases and disorders	AKR1C1/AKR1C2 have links to hormone-related cancers such as prostate and breast cancer. These enzymes impact the local hormone levels affecting cancer progression and response to therapy. Alterations in AKR1C1 and AKR1C2 expression or function can lead to hormone imbalances influencing cancer risk and treatment outcomes. Through their modulation of steroid hormones they connect to the activity of proteins like androgen and estrogen receptors which are critical in the pathogenesis of hormone-driven cancers.

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

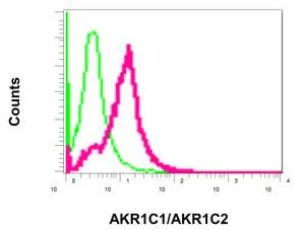
We do not recommend this combination. It is not covered by our product promise.

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.

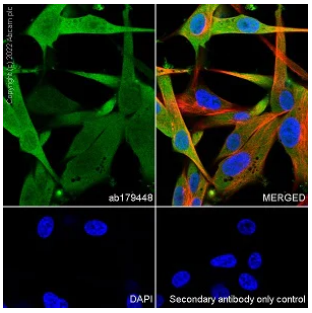
5 product images



Flow Cytometry (Intracellular) - Anti-AKR1C1/AKR1C2 antibody [EPR11542] (ab179448)

AKR1C1/AKR1C2 Flow Cytometry (Intracellular) staining using rabbit Anti-AKR1C1/AKR1C2 antibody

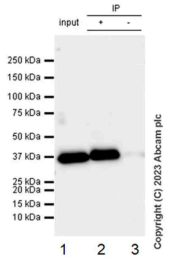
Intracellular flow cytometric analysis of permeabilized U87-MG cellslabeling AKR1C1/AKR1C2 with ab179448 at 1/10 dilution (red),compared toa rabbit IgG negative control (green).



Immunocytochemistry/ Immunofluorescence - Anti-AKR1C1/AKR1C2 antibody [EPR11542] (ab179448)

AKR1C1/AKR1C2 Immunocytochemistry/ Immunofluorescence staining of U-87 MG (human glioblastoma-astrocytoma epithelial cell) cells using rabbit Anti-AKR1C1/AKR1C2 antibody

Immunocytochemical/immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized U-87 MG (human glioblastoma- astrocytoma epithelial cell) cells labelling AKR1C1/AKR1C2 with primary antibody anti-AKR1C1/AKR1C2 (ab179448) at 1/500 dilution, followed by AlexaFluor®488 Goat anti-Rabbit (ab150077) secondary antibody at 1/1000 dilution. Confocal image showing cytoplasmic and nuclear staining in U-87 MG cell line. Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) was used to counterstain tubulin at 1:200 dilution. The nuclear counter stain is DAPI (blue).



Immunoprecipitation - Anti-AKR1C1/AKR1C2 antibody [EPR11542] (ab179448)

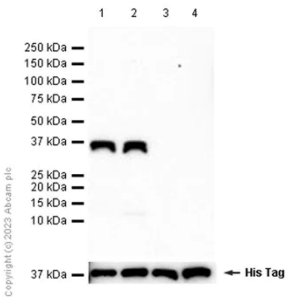
AKR1C1/AKR1C2 was immunoprecipitated from U-87 MG lysates with ab179448 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab179448 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP) (ab131366) was used at 1/5000 dilution. Lane 1: U-87 MG (human glioblastoma-astrocytoma epithelial cell) whole cell lysate 10 µg Lane 2: ab179448 in U-87 MG (human glioblastoma-astrocytoma epithelial cell) whole cell lysate Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab179448 in U-87 MG whole cell lysate Blocking and dilution buffer and concentration: 5% NFDM/TBST.
All lanes:
Immunoprecipitation - Anti-AKR1C1/AKR1C2 antibody [EPR11542] (ab179448) at 1/30 dilution

All lanes:
U-87 MG lysates

Secondary

All lanes:
Immunoprecipitation - VeriBlot for IP Detection Reagent (HRP) (ab131366) at 1/5000 dilution

Exposure time: 180s



Western blot - Anti-AKR1C1/AKR1C2 antibody [EPR11542] (ab179448)

Blocking buffer and concentration: 5% NFDM/TBST. **Diluting buffer and concentration:** 5% NFDM/TBST.
All lanes:
Western blot - Anti-AKR1C1/AKR1C2 antibody [EPR11542] (ab179448) at 1/1000 dilution

Lane 1:
His-tagged human AKR1C1 recombinant protein, full-length

Lane 2:
His-tagged human AKR1C2 recombinant protein, full-length

Lane 3:
His-tagged human AKR1C3 recombinant protein, full-length

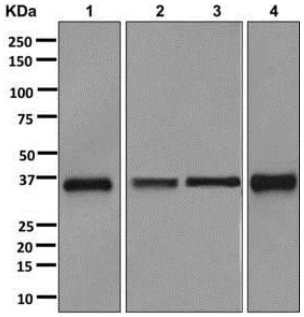
Lane 4:
His-tagged human AKR1C4 recombinant protein, full-length

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Observed band size: 39 kDa

Exposure time: 40s



Western blot - Anti-AKR1C1/AKR1C2 antibody [EPR11542] (ab179448)

All lanes:
Western blot - Anti-AKR1C1/AKR1C2 antibody [EPR11542] (ab179448) at 1/1000 dilution

Lane 1:
HepG2 lysate at 10 µg

Lane 2:
U87-MG lysate at 10 µg

Lane 3:
Human fetal liver lysate at 10 µg

Lane 4:
HeLa lysate at 10 µg

Predicted band size: 37 kDa

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