abcam

ab316864

Anti-AKR1C3 antibody [EPR28747-41]

Recombinant | RabMAb | 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	EPR28747-41
Purification technique	Affinity purification Protein A
Specificity	Not suitable for detecting normal mouse lung tissue in IHC-P.
Concentration	0.514 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Species	Mouse
Dilution info	1/1000
Notes	-

Not recommended

Species	Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/2000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Mouse
Dilution info	1/2000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Not recommended

Species	Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/500

Notes	-

Expected

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

Not recommended

Species	Rat
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Expected

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

Not recommended

Species	Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	-

Expected

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

Not recommended

Species	Rat
Dilution info	-
Notes	-

Target data

See full target information AKR1C3

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 17beta-hydroxysteroids, but also 3alpha- and 20alpha-hydroxysteroids (PubMed:10998348, PubMed:11165022, PubMed:20036328, PubMed:9415401, PubMed:9927279, PubMed:10998348, PubMed:9927279). Produces potent androgens via classical and 'backdoor'/alternative pathways. In the classical androgen metabolic pathway (biosynthesis of 5alpha-dihydrotestosterone (5alpha-DHT) via testosterone), catalyzes the reduction of delta4-androstenedione to form testosterone (PubMed:10998348, PubMed:11165022, PubMed:20036328, PubMed:9415401, PubMed:9927279). In the 'backdoor' androgen metabolic pathway (biosynthesis of 5alpha-dihydrotestosterone (5alpha-DHT) via pregnanes), reduces androsterone to 5alpha-androstane-3alpha,17beta-diol preceding 5alpha-DHT secretion (PubMed:10557352, PubMed:10998348, PubMed:9415401). Reduces 5alpha-DHT to less potent androgen 5alpha-androstane-3alpha,17beta-diol, likely regulating ligand availability for androgen receptors (PubMed:10557352, PubMed:10998348, PubMed:11165022, PubMed:14672942, PubMed:7650035, PubMed:9415401). May contribute to the metabolism of adrenal-derived androgen precursors. Reduces 11-keto-4-androstene-3,17-dione (11KA4) and 11-keto-5alpha-androstane-3,17-dione (11K-Adione) into potent androgens 11-ketotestosterone (11KT) and 11-ketodihydrotestosterone (11KDHT), respectively (PubMed:31926269). In estrogen metabolism, catalyzes the conversion of estrone to potent estrogen 17beta-estradiol (PubMed:10998348, PubMed:11165022, PubMed:20036328). Acts as a

prostaglandin (PG) F2alpha synthase. Displays 11-ketoreductase and 9,11-endoperoxide reductase activities and reduces PGD2 to 11beta-PGF2alpha and PGH2 to PGF2alpha (PubMed:10622721, PubMed:11165022, PubMed:15047184, PubMed:19010934, PubMed:20036328, PubMed:7650035, PubMed:9415401, PubMed:9927279). Also displays retinaldehyde reductase activity toward 9-cis-retinal (PubMed:21851338). 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:11165022, PubMed:14672942). In addition, it is able to reduce in vitro various carbonyl compounds like menadione, phenanthrenequinone and nitrobenzaldehyde (By similarity).

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 AKR1C3 protein also known as aldo-keto reductase family 1 member C3 functions as an enzyme and part of the aldo-keto reductase superfamily. AKR1C3 reduces ketosteroids and prostaglandins participating in steroid hormone metabolism. It has a molecular mass of about 37 kDa. It is expressed in various tissues such as the liver ovaries and adrenal glands.
Biological function summary	The enzyme engages in important roles in androgen estrogen and prostaglandin metabolism. AKR1C3 works in steroid biosynthesis by reducing 17-ketosteroids to their hydroxysteroid forms. It participates in the regulation of sex steroid hormones and contributes to prostaglandin metabolism though it does not function as part of a complex. Its activity can affect the balance of hormones and local cellular processes impacting a variety of biological activities.
Pathways	AKR1C3 plays significant roles in metabolic and signaling pathways including the steroid hormone biosynthesis and prostaglandin receptor pathways. It interacts with other enzymes like AKR1C2 which also works in steroid processing adding to the regulation of hormone levels and activities. These pathways enable the enzyme to alter cellular responses and influence receptor signaling.
Associated diseases and disorders	AKR1C3 has associations with hormone-related cancers such as prostate and breast cancer. Its overexpression or misregulation could drive tumor progression by altering hormone levels that fuel cancer growth. It connects with other proteins like CYP19A1 (aromatase) involved in estrogen synthesis indicating a contribution to estrogen-sensitive cancer development. Overall AKR1C3's role in metabolic dysfunctions and hormone-related disorders emphasizes its importance as a biological target.

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

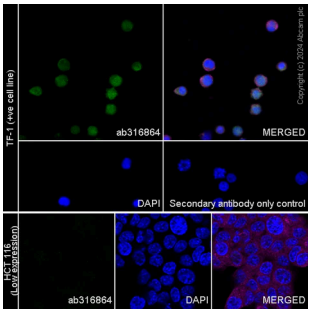
We do not recommend this combination. It is not covered by our product promise.

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.

13 product images



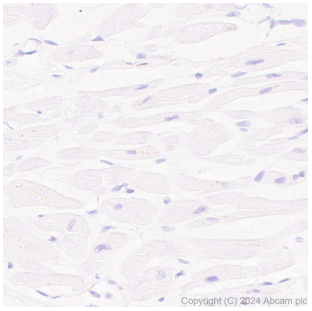
Immunocytochemistry/ Immunofluorescence - Anti-AKR1C3 antibody [EPR28747-41] (ab316864)

Immunofluorescent analysis of 100% methanol-fixed, 0.1% TritonX-100 permeabilized TF-1 (human erythroleukemia erythroblast) cells labelling AKR1C3 with ab316864 at 1/50 (10.0 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 (2 ug/ml) dilution (Green).

Confocal image showing nuclear and cytoplasmic staining in TF-1 cell line.
Low expression: HCT 116 (PMID: 21215737).
Image was taken with a confocal microscope(Leica-Microsystems, TCS SP8).

ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 (2.5ug/ml) dilution (Magenta). The Nuclear counterstain was DAPI (Blue).

Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 (2 ug/ml) dilution.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-AKR1C3 antibody [EPR28747-41] (ab316864)

AKR1C3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human cardiac muscle using rabbit Anti-AKR1C3 antibody

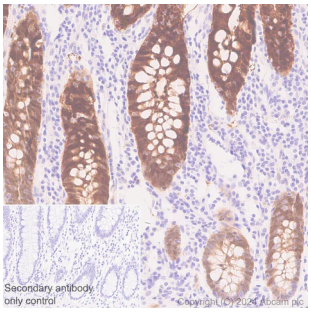
Immunohistochemical analysis of paraffin-embedded Human cardiac muscle tissue labeling AKR1C3 with ab316864 at 1/2000 (0.25 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Negative control: No staining on human cardiac muscle (PMID: 33352741).
The section was incubated with ab316864 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument
Incubate slides with 3% Hydrogen Peroxide for 10 mins at room temperature after secondary antibody incubation to reduce the background.

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-AKR1C3 antibody [EPR28747-41] (ab316864)

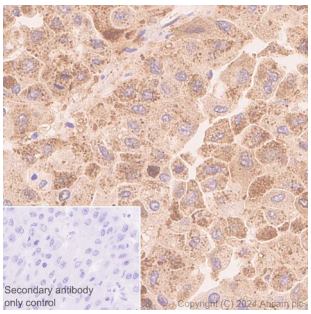
Immunohistochemical analysis of paraffin-embedded Human colon tissue labeling AKR1C3 with ab316864 at 1/2000 (0.25 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Positive staining on human colon (PMID: 33352741).
The section was incubated with ab316864 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument
Incubate slides with 3% Hydrogen Peroxide for 10 mins at room temperature after secondary antibody incubation to reduce the background.

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-AKR1C3 antibody [EPR28747-41] (ab316864)

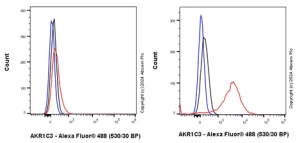
Immunohistochemical analysis of paraffin-embedded Human hepatocellular carcinoma tissue labeling AKR1C3 with ab316864 at 1/2000 (0.25 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Positive staining on human hepatocellular carcinoma.
The section was incubated with ab316864 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument
Incubate slides with 3% Hydrogen Peroxide for 10 mins at room temperature after secondary antibody incubation to reduce the background.

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins

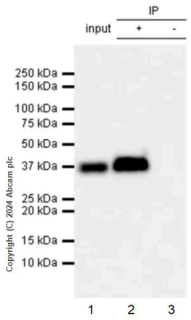


Flow Cytometry (Intracellular) - Anti-AKR1C3 antibody [EPR28747-41] (ab316864)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized HCT 116 (human colorectal carcinoma epithelial cell, Left) / TF-1 (human erythroleukemia erythroblast, Right) cells labelling AKR1C3 with ab316864 at 1/500 dilution (0.1 ug)/Red compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue).

Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/5000 dilution was used as the secondary antibody.

Low expression: HCT 116.



Immunoprecipitation - Anti-AKR1C3 antibody [EPR28747-41] (ab316864)

AKR1C3 was immunoprecipitated from 0.35 mg A549 (human lung carcinoma epithelial cell) whole cell lysate with ab316864 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab316864 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP)(ab131366) was used at 1/5000 dilution.

Lane 1: A549 (human lung carcinoma epithelial cell) whole cell lysate
Lane 2: ab316864 IP in A549 (human lung carcinoma epithelial cell) whole cell lysate
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab316864 in A549 whole cell lysate

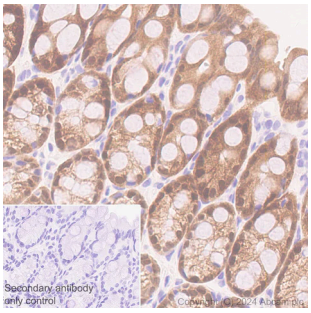
All lanes:
Immunoprecipitation - Anti-AKR1C3 antibody [EPR28747-41] (ab316864) at 1/30 dilution

All lanes:
A549 (human lung carcinoma epithelial cell) whole cell lysate

Secondary

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

Exposure time: 6s



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-AKR1C3 antibody [EPR28747-41] (ab316864)

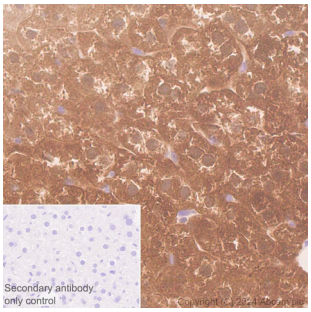
Immunohistochemical analysis of paraffin-embedded Mouse colon tissue labeling AKR1C3 with ab316864 at 1/2000 (0.25 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Positive staining on mouse colon.
The section was incubated with ab316864 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-AKR1C3 antibody [EPR28747-41] (ab316864)

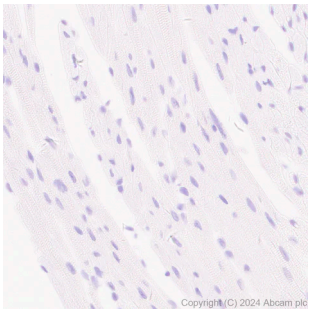
Immunohistochemical analysis of paraffin-embedded Mouse liver tissue labeling AKR1C3 with ab316864 at 1/2000 (0.25 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Positive staining on mouse liver.
The section was incubated with ab316864 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed 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-AKR1C3 antibody [EPR28747-41] (ab316864)

AKR1C3 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Mouse cardiac muscle using rabbit Anti-AKR1C3 antibody

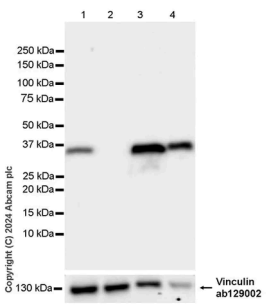
Immunohistochemical analysis of paraffin-embedded Mouse cardiac muscle tissue labeling AKR1C3 with ab316864 at 1/2000 (0.25 ug/ml) dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Negative control: No staining on mouse cardiac muscle.
The section was incubated with ab316864 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins



Western blot - Anti-AKR1C3 antibody [EPR28747-41] (ab316864)

AKR1C3 Western blot staining using rabbit Anti-AKR1C3 antibody

Low expression:HCT 116 (PMID: 21215737, PMID: 35388063)

In Western blot, Anti-Vinculin antibody [EPR8185] (ab129002) staining at 1/10000 dilution.

All lanes:
Western blot - Anti-AKR1C3 antibody [EPR28747-41] (ab316864) at 1/1000 dilution

Lane 1:
TF-1 (human Erythroleukemia erythroblast) whole cell lysate at 20 µg

Lane 2:
HCT116 (human colorectal carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 3:
A549 (human lung carcinoma epithelial cell) whole cell lysate at 20 µg

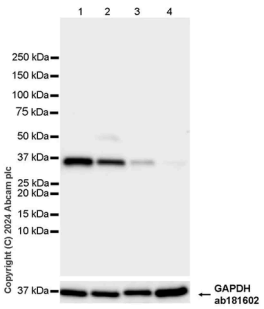
Lane 4:
HepG2 (human hepatocellar carcinoma epithelial cell) whole cell lysate at 20 µg

Secondary

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

Observed band size: 36 kDa, 124 kDa

Exposure time: 10s



Western blot - Anti-AKR1C3 antibody [EPR28747-41] (ab316864)

AKR1C3 Western blot staining using rabbit Anti-AKR1C3 antibody

Low expression: muscle (PMID: 18635746)

In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/200000 dilution.

All lanes:
Western blot - Anti-AKR1C3 antibody [EPR28747-41] (ab316864) at 1/1000 dilution

Lane 1:
Human liver tissue lysate at 20 µg

Lane 2:
Human kidney tissue lysate at 20 µg

Lane 3:
Human testis tissue lysate at 20 µg

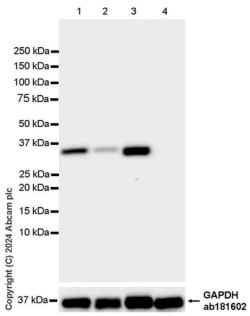
Lane 4:
Human skeletal muscle tissue lysate at 20 µg

Secondary

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

Observed band size: 36 kDa

Exposure time: 8s



Western blot - Anti-AKR1C3 antibody [EPR28747-41] (ab316864)

AKR1C3 Western blot staining using rabbit Anti-AKR1C3 antibody

Low expression: muscle (PMID: 18635746)

In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/200000 dilution.

All lanes:
Western blot - Anti-AKR1C3 antibody [EPR28747-41] (ab316864) at 1/1000 dilution

Lane 1:
Mouse colon tissue lysate at 20 µg

Lane 2:
Mouse kidney tissue lysate at 20 µg

Lane 3:
Mouse liver tissue lysate at 20 µg

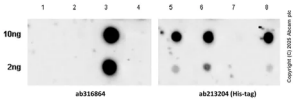
Lane 4:
Mouse skeletal muscle tissue lysate at 20 µg

Secondary

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

Observed band size: 36 kDa

Exposure time: 10s



Dot Blot - Anti-AKR1C3 antibody [EPR28747-41] (ab316864)

AKR1C3 Dot Blot staining using rabbit Anti-AKR1C3 antibody

Dot blot analysis of AKR1C3 using ab316864 (Lane 1-4) at 1/1000 followed by a Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1/20000 Dilution] dilution and Dot blot analysis of AKR1C3 using ab213204 (lane 5-8) at 1/1000 followed by a Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1/20000 dilution.

Lane 1&5: His tagged AKR1C1 recombinant protein
Lane 2&6: His tagged AKR1C2 recombinant protein
Lane 3&7: AKR1C3 recombinant protein without tag
Lane 4&8: His tagged AKR1C4 recombinant protein

Lanes 1 - 4:
Dot Blot - Anti-AKR1C3 antibody [EPR28747-41] (ab316864) at 1/1000 dilution

Lanes 5 - 8:
Dot Blot - Anti-6X His tag® antibody [EPR20547] - ChIP Grade (ab213204) at 1/1000 dilution

Lanes 1 and 5:
His tagged AKR1C1 recombinant protein

Lanes 2 and 6:
His tagged AKR1C2 recombinant protein

Lanes 3 and 7:
AKR1C3 recombinant protein without tag

Lanes 4 and 8:
His tagged AKR1C4 recombinant protein

Secondary

All lanes:
Dot Blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051)

Exposure time: 180s

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