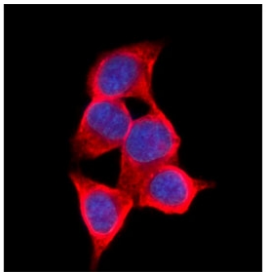
AKR1C1/2 Polyclonal Antibody / Aldo-Keto Reductase 1C1/2 Antibody (R32504)

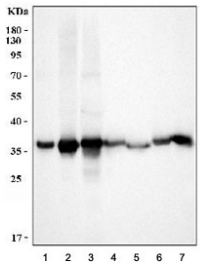
Catalog No.	Formulation	Size
R32504	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

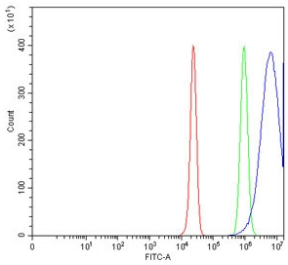
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q04828, P52895
Localization	Cytoplasmic
Applications	Western blot: 0.5-1ug/ml Immunofluorescence: 5ug/ml Flow cytometry: 1-3ug/million cells
Limitations	This AKR1C1/2 Polyclonal Antibody / Aldo-Keto Reductase 1C1/2 Antibody is available for research use only.



AKR1C1/2 Polyclonal Antibody IF Analysis of Human HepG2 Cells. Immunofluorescence analysis of formalin-fixed, paraffin-embedded human HepG2 cells using Aldo-Keto Reductase 1C1/2 Antibody. Cytoplasmic immunoreactivity is visible in red fluorescence surrounding DAPI-stained nuclei shown in blue. Heat-induced epitope retrieval (HIER) was performed by steaming the sample in citrate buffer (pH 6.0) for 20 minutes.



AKR1C1/2 Polyclonal Antibody WB Analysis of Human HepG2, A549 and HCCP Cells and Rat and Mouse Tissues. Western blot analysis of human HepG2 (lane 1), A549 (lane 2), and HCCP (lane 3) cell lysates, rat liver (lane 4), rat kidney (lane 5), mouse liver (lane 6), and mouse kidney (lane 7) lysates using Aldo-Keto Reductase 1C1/2 Antibody. Immunoreactive bands are observed at approximately 37 kDa, consistent with the predicted molecular weights of AKR1C1 and AKR1C2. Signal intensity varies among the samples. Because these closely related proteins have similar molecular weights, the detected bands cannot be assigned individually to AKR1C1 or AKR1C2 based on this analysis alone.



AKR1C1/2 Polyclonal Antibody FACS Staining of Human HepG2 Cells. Flow cytometry analysis of human HepG2 cells using Aldo-Keto Reductase 1C1/2 Antibody at 1 ug per million cells following blocking with goat serum. The antibody-stained population (blue) demonstrates a pronounced rightward fluorescence shift relative to the isotype control (green) and unstained cells (red), indicating AKR1C1/2 immunoreactivity in the tested cell population. AKR1C1 and AKR1C2 are cytoplasmic enzymes, and this result should not be interpreted as evidence of cell-surface localization.

Description

AKR1C1/2 Polyclonal Antibody / Aldo-Keto Reductase 1C1/2 Antibody recognizes AKR1C1 and AKR1C2, two closely related members of the aldo-keto reductase superfamily. These cytoplasmic oxidoreductases participate in the metabolism of steroid hormones, prostaglandins, and other endogenous carbonyl-containing compounds. Both enzymes use NADPH as a preferred reducing cofactor and catalyze reactions involving ketone and hydroxyl groups. Their substantial sequence similarity results in overlapping substrate preferences, although differences in catalytic efficiency and substrate orientation contribute to distinct physiological activities.

AKR1C1 is commonly associated with 20-alpha hydroxysteroid dehydrogenase activity and participates in progesterone metabolism. By reducing the 20-keto group of progesterone, AKR1C1 can generate metabolites with diminished progestational activity. The enzyme also acts on additional steroid substrates and contributes to the regulation of local steroid availability. Its activity is particularly relevant to tissues in which steroid concentrations and receptor signaling are influenced by intracellular metabolism rather than circulating hormone levels alone.

AKR1C2 exhibits prominent 3-alpha hydroxysteroid dehydrogenase activity and participates in androgen metabolism. One important reaction involves the conversion of dihydrotestosterone to 3-alpha androstanediol, a metabolite with substantially reduced androgen receptor activity. Through this pathway, AKR1C2 can influence the local availability of potent androgens. Both enzymes also contribute to the metabolism of other steroid intermediates, reflecting their broader roles in maintaining steroid homeostasis.

Beyond steroid metabolism, AKR1C enzymes participate in cellular responses to reactive carbonyl compounds and oxidative stress. Their ability to reduce selected aldehydes and ketones connects these proteins to detoxification processes and metabolic adaptation. Changes in AKR1C expression have been investigated in hormone-responsive malignancies and other pathological conditions involving altered steroid signaling or redox balance. However, the biological consequences of increased or decreased expression depend on the specific enzyme, substrate environment, and cellular context.

Because AKR1C1 and AKR1C2 share extensive sequence identity and similar molecular weights, distinguishing their individual contributions can require isoform-selective reagents or complementary molecular approaches. AKR1C1/2 Polyclonal Antibody provides a means of examining these related enzymes collectively in studies of steroid metabolism, cellular oxidoreductase activity, and the regulation of local hormone availability.

Explore our Metabolism Antibodies for additional targets involved in steroid hormone metabolism, cellular oxidoreductase

activity, and the regulation of metabolic pathways.

Application Notes

Differences in protocols and secondary/substrate sensitivity may require the AKR1C1/2 Polyclonal Antibody / Aldo-Keto Reductase 1C1/2 Antibody to be titrated for optimal performance.

Immunogen

Amino acids M1-K123 from human AKR1C1 were used as the immunogen for the AKR1C1/2 Polyclonal Antibody.

Storage

After reconstitution, the AKR1C1/2 Polyclonal Antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

AKR1C1 antibody, AKR1C2 antibody, aldo-keto reductase family 1 member C1 antibody, aldo-keto reductase family 1 member C2 antibody, 20-alpha hydroxysteroid dehydrogenase antibody, 3-alpha hydroxysteroid dehydrogenase antibody, dihydrodiol dehydrogenase antibody

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