

# AKR1A1 (E-9): sc-271723

## BACKGROUND

AKR1A1 (aldo-keto reductase family 1 member A1), also known as ALR (aldehyde reductase), DD3 (dihydrodiol dehydrogenase 3) or ALDR1 (alcohol dehydrogenase), is a widely and abundantly expressed member of the aldo-keto reductase (AKR) family of proteins. Members of the AKR family are soluble NADPH-dependent oxidoreductases. They play important roles in the metabolism of drugs, carcinogens and reactive aldehydes. AKR1A1 exists as a monomer and catalyzes the reduction of xenobiotic and biogenic aldehydes and ketones to their corresponding alcohols. In particular, AKR1A1 efficiently catalyzes medium-chain and aromatic aldehydes. AKR1A1 participates in the biosynthetic pathways of cholesterol and triglyceride and plays a role in the activation of polycyclic aromatic hydrocarbons (PAHs).

## REFERENCES

- Jez, J.M., et al. 1997. A new nomenclature for the aldo-keto reductase superfamily. *Biochem. Pharmacol.* 54: 639-647.
- O'Connor, T., et al. 1999. Major differences exist in the function and tissue-specific expression of human aflatoxin B1 aldehyde reductase and the principal human aldo-keto reductase AKR1 family members. *Biochem. J.* 343: 487-504.
- Barski, O.A., et al. 1999. Characterization of the human aldehyde reductase gene and promoter. *Genomics* 60: 188-198.
- Palackal, N.T., et al. 2001. The ubiquitous aldehyde reductase (AKR1A1) oxidizes proximate carcinogen *trans*-dihydrodiols to o-quinones: potential role in polycyclic aromatic hydrocarbon activation. *Biochemistry* 40: 10901-10910.
- Palackal, N.T., et al. 2001. Metabolic activation of polycyclic aromatic hydrocarbon *trans*-dihydrodiols by ubiquitously expressed aldehyde reductase (AKR1A1). *Chem. Biol. Interact.* 130-132: 815-824.

## CHROMOSOMAL LOCATION

Genetic locus: AKR1A1 (human) mapping to 1p34.1; *Akr1a1* (mouse) mapping to 4 D1.

## SOURCE

AKR1A1 (E-9) is a mouse monoclonal antibody raised against amino acids 211-325 mapping at the C-terminus of AKR1A1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

AKR1A1 (E-9) is available conjugated to agarose (sc-271723 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271723 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271723 PE), fluorescein (sc-271723 FITC), Alexa Fluor<sup>®</sup> 488 (sc-271723 AF488), Alexa Fluor<sup>®</sup> 546 (sc-271723 AF546), Alexa Fluor<sup>®</sup> 594 (sc-271723 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-271723 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-271723 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-271723 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

AKR1A1 (E-9) is recommended for detection of AKR1A1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for AKR1A1 siRNA (h): sc-78566, AKR1A1 siRNA (m): sc-140983, AKR1A1 shRNA Plasmid (h): sc-78566-SH, AKR1A1 shRNA Plasmid (m): sc-140983-SH, AKR1A1 shRNA (h) Lentiviral Particles: sc-78566-V and AKR1A1 shRNA (m) Lentiviral Particles: sc-140983-V.

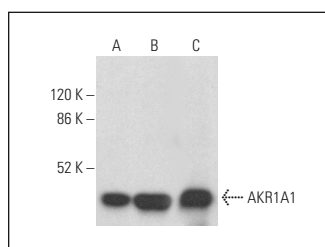
Molecular Weight of AKR1A1: 37 kDa.

Positive Controls: Caki-1 cell lysate: sc-2224, COLO 205 whole cell lysate: sc-364177 or HL-60 whole cell lysate: sc-2209.

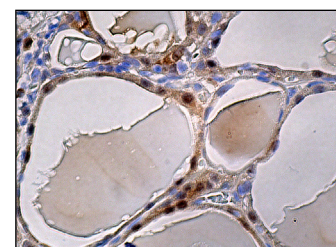
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

## DATA



AKR1A1 (E-9): sc-271723. Western blot analysis of AKR1A1 expression in Caki-1 (A) and COLO 205 (B) whole cell lysates and human fetal liver tissue extract (C).



AKR1A1 (E-9): sc-271723. Immunoperoxidase staining of formalin fixed, paraffin-embedded human thyroid gland tissue showing cytoplasmic and nuclear staining of glandular cells.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

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