

# AKR1A1 (3B08): sc-100500

## 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

1. Jez, J.M., et al. 1997. A new nomenclature for the aldo-keto reductase superfamily. *Biochem. Pharmacol.* 54: 639-647.
2. 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.

## CHROMOSOMAL LOCATION

Genetic locus: AKR1A1 (human) mapping to 1p34.1; Akrla1 (mouse) mapping to 4 D1.

## SOURCE

AKR1A1 (3B08) is a mouse monoclonal antibody raised against recombinant AKR1A1 of human origin.

## PRODUCT

Each vial contains 100 µg IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

AKR1A1 (3B08) is recommended for detection of AKR1A1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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.

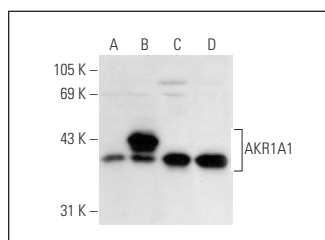
Molecular Weight of AKR1A1: 37 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, AKR1A1 (h4): 293T Lysate: sc-158243 or HL-60 whole cell lysate: sc-2209.

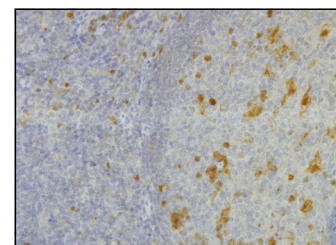
## RECOMMENDED SUPPORT REAGENTS

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™ Molecular Weight Standards: sc-2035, UltraCruz® 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® Mounting Medium: sc-24941 or UltraCruz® 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 (3B08): sc-100500. Western blot analysis of AKR1A1 expression in non-transfected 293T: sc-117752 (A), human AKR1A1 transfected 293T: sc-158243 (B), HL-60 (C) and HeLa (D) whole cell lysates.



AKR1A1 (3B08): sc-100500. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human tonsil tissue showing cytoplasmic localization.

## SELECT PRODUCT CITATIONS

1. Caterino, M., et al. 2016. The proteome of methylmalonic acidemia (MMA): the elucidation of altered pathways in patient livers. *Mol. Biosyst.* 12: 566-574.
2. Zhou, H.L., et al. 2018. Metabolic reprogramming by the S-nitroso-CoA reductase system protects against kidney injury. *Nature* 565: 96-100.
3. Stomberski, C.T., et al. 2019. Molecular recognition of S-nitrosothiol substrate by its cognate protein denitrosylase. *J. Biol. Chem.* 294: 1568-1578.
4. Stomberski, C.T., et al. 2022. A multienzyme S-nitrosylation cascade regulates cholesterol homeostasis. *Cell Rep.* 41: 111538.

## 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.