SANTA CRUZ BIOTECHNOLOGY, INC.

AKR1A1 (h): 293T Lysate: sc-174231

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

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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.
3. Barski, O.A., et al. 1999. Characterization of the human aldehyde reductase gene and promoter. Genomics 60: 188-198.
4. 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.
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6. Plebuch, M., et al. 2007. Increased resistance of tumor cells to daunorubicin after transfection of cDNAs coding for anthracycline inactivating enzymes. Cancer Lett. 255: 49-56.
7. Holland-Nell, K., et al. 2007. Specifically immobilised aldo/keto reductase AKR1A1 shows a dramatic increase in activity relative to the randomly immobilised enzyme. Chembiochem 8: 1071-1076.
8. Caino, M.C., et al. 2007. Benzo[a]pyrene-7,8-dihydrodiol promotes checkpoint activation and G_2/M arrest in human bronchoalveolar carcinoma H358 cells. Mol. Pharmacol. 71: 744-750.
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CHROMOSOMAL LOCATION

Genetic locus: AKR1A1 (human) mapping to 1p34.1.

PRODUCT

AKR1A1 (h): 293T Lysate represents a lysate of human AKR1A1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

AKR1A1 (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive AKR1A1 antibodies. Recommended use: 10-20 µl per lane.

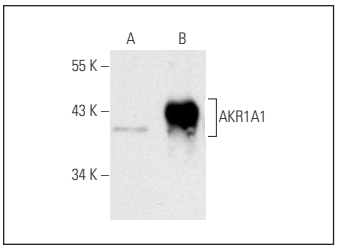
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

AKR1A1 (B-9): sc-365078 is recommended as a positive control antibody for Western Blot analysis of enhanced human AKR1A1 expression in AKR1A1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

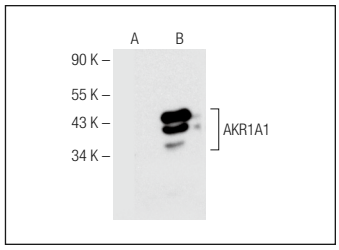
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGλ BP-HRP: sc-516132 or m-IgGλ BP-HRP (Cruz Marker): sc-516132-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.

DATA



AKR1A1 (B-9): sc-365078. Western blot analysis of AKR1A1 expression in non-transfected: sc-117752 (**A**) and human AKR1A1 transfected: sc-174231 (**B**) 293T whole cell lysates.



AKR1A1 (B-10): sc-374204. Western blot analysis of AKR1A1 expression in non-transfected: sc-117752 (**A**) and human AKR1A1 transfected: sc-174231 (**B**) 293T whole cell lysates.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. 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 for detailed protocols and support products.