

# AKR7A (F-8): sc-137186

## BACKGROUND

The aldo-keto reductase 7 (AKR7) family includes AKR7A2, AKR7A3 and AKR7A4 in human, AKR7A5 in mouse and AKR7A2 in rat, all of which function in the metabolism of Aflatoxin B1 and other dicarbonyl-containing compounds. More specifically, AKR7A proteins are involved in the metabolism of compounds with ketone groups on adjacent carbon atoms in a broad range of tissues, notably the liver. The human AKR7A2 gene maps to human chromosome 1p35.13, a region frequently deleted in sporadic colorectal cancer. The functional significance of this correlation lies in the constitutive expression of AKR7A2 in human liver to eliminate aflatoxin (an environmental carcinogen), thus acting as an endogenous chemo-preventative agent. AKR7A3 is believed to be a homodimer expressed in kidney, colon, pancreas, endometrium and adenocarcinoma.

## REFERENCES

1. Ellis, E.M., et al. 1995. Substrate specificity of an aflatoxin-metabolizing aldehyde reductase. *Biochem. J.* 312: 535-541.
2. Ireland, L.S., et al. 1998. Molecular cloning, expression and catalytic activity of a human AKR7 member of the aldo-keto reductase superfamily: evidence that the major 2-carboxybenzaldehyde reductase from human liver is a homologue of rat aflatoxin B1-aldehyde reductase. *Biochem. J.* 332: 21-34.
3. Kelly, V.P., et al. 2000. Purification from rat liver of a novel constitutively expressed member of the aldo-keto reductase 7 family that is widely distributed in extrahepatic tissues. *Biochem. J.* 348: 389-400.
4. Kelly, V.P., et al. 2002. Novel homodimeric and heterodimeric rat  $\gamma$ -hydroxybutyrate synthases that associate with the Golgi apparatus define a distinct subclass of aldo-keto reductase 7 family proteins. *Biochem. J.* 366: 847-861.

## CHROMOSOMAL LOCATION

Genetic locus: AKR7A2/AKR7A3 (human) mapping to 1p36.13; *Akr7a5* (mouse) mapping to 4 D3.

## SOURCE

AKR7A (F-8) is a mouse monoclonal antibody raised against amino acids 63-359 mapping at the C-terminus of AKR7A2 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

AKR7A (F-8) is available conjugated to agarose (sc-137186 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-137186 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-137186 PE), fluorescein (sc-137186 FITC), Alexa Fluor<sup>®</sup> 488 (sc-137186 AF488), Alexa Fluor<sup>®</sup> 546 (sc-137186 AF546), Alexa Fluor<sup>®</sup> 594 (sc-137186 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-137186 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-137186 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-137186 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## APPLICATIONS

AKR7A (F-8) is recommended for detection of AKR7A2 and AKR7A3 of human origin, AKR7A5 of mouse origin and AKR7A2 of rat origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of AKR7A2/AKR7A5: 40 kDa.

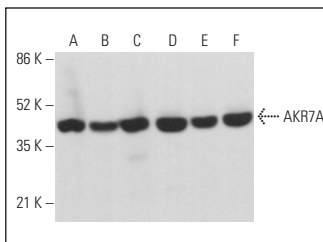
Molecular Weight of AKR7A3/AKR7A4: 37 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, Hep G2 cell lysate: sc-2227 or HeLa whole cell lysate: sc-2200.

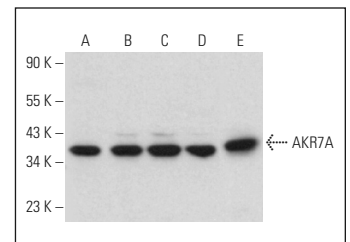
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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.

## DATA



AKR7A (F-8): sc-137186. Western blot analysis of AKR7A expression in Hep G2 (A), HL-60 (B), HeLa (C), MOLT-4 (D), AN3CA (E) and A-431 (F) whole cell lysates. Detection reagent used: m-IgG $\kappa$  BP-HRP: sc-516102.



AKR7A (F-8): sc-137186. Western blot analysis of AKR7A expression in Hep G2 (A), CCRF-CEM (B), Jurkat (C), ALL-SIL (D) and A2058 (E) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Yu, Q., et al. 2021. S-allylmercaptocysteine improves nonalcoholic steatohepatitis by enhancing AHR/NRF2-mediated drug metabolizing enzymes and reducing NF $\kappa$ B/I $\kappa$ B $\alpha$  and NLRP3/6-mediated inflammation. *Eur. J. Nutr.* 60: 961-973.

## 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.