SANTA CRUZ BIOTECHNOLOGY, INC.

AKR7A (E-11): sc-365400

The Power to Question

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 1p36.13, 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 γ-hydroxybutyrate synthases that associate with the Golgi apparatus define a distinct subclass of aldo-keto reductase 7 family proteins. Biochem. J. 366: 847-861.
5. Praml, C., et al. 2003. Aflatoxin B1 aldehyde reductase (AFAR) genes cluster at 1p35-1p36.1 in a region frequently altered in human tumour cells. Oncogene 22: 4765-4773.
6. Kozma, E., et al. 2003. The high resolution crystal structure of rat liver AKR7A1: understanding the substrate specificites of the AKR7 family. Chem. Biol. Interact. 143-144: 289-297.

CHROMOSOMAL LOCATION

Genetic locus: AKR7A2/AKR7A3/AKR7L (human) mapping to 1p36.13; Akr7a5 (mouse) mapping to 4 D3.

SOURCE

AKR7A (E-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 335-359 at the C-terminus of AKR7A2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-365400 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

AKR7A (E-11) is recommended for detection of AKR7A2, AKR7A3 and AKR7A4 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 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 AKR7A5 siRNA (m): sc-140994, AKR7A5 shRNA Plasmid (m): sc-140994-SH and AKR7A5 shRNA (m) Lentiviral Particles: sc-140994-V.

Molecular Weight of AKR7A2/AKR7A5: 40 kDa.

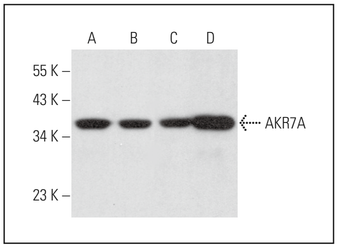
Molecular Weight of AKR7A3/AKR7A4: 37 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, KNRK whole cell lysate: sc-2214 or MCF7 whole cell lysate: sc-2206.

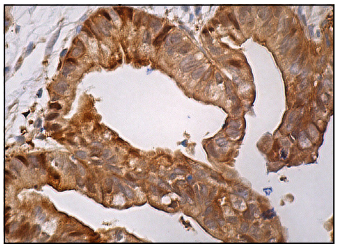
RECOMMENDED SECONDARY REAGENTS

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



AKR7A (E-11): sc-365400. Western blot analysis of AKR7A expression in HeLa (**A**), MCF7 (**B**), C6 (**C**) and KNRK (**D**) whole cell lysates.



AKR7A (E-11): sc-365400. Immunoperoxidase staining of formalin fixed, paraffin-embedded human gall bladder 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.