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AKR1A1 Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP2734b

Product Information

Application	IHC-P, WB, E
Primary Accession	P14550
Other Accession	P51635, P50578, Q9JII6, Q3ZCJ2, Q6IAZ4
Reactivity	Human
Predicted	Bovine, Mouse, Pig, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB15230
Calculated MW	36573
Antigen Region	293-325

Additional Information

Gene ID	10327
Other Names	Alcohol dehydrogenase [NADP(+)], Aldehyde reductase, Aldo-keto reductase family 1 member A1, AKR1A1, ALDR1, ALR
Target/Specificity	This AKR1A1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 293-325 amino acids from the C-terminal region of human AKR1A1.
Dilution	IHC-P~~1:100~500 WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	AKR1A1 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	AKR1A1
Synonyms	ALDR1, ALR

Function	Catalyzes the NADPH-dependent reduction of a wide variety of carbonyl-containing compounds to their corresponding alcohols (PubMed:10510318, PubMed:30538128). Displays enzymatic activity towards endogenous metabolites such as aromatic and aliphatic aldehydes, ketones, monosaccharides and bile acids, with a preference for negatively charged substrates, such as glucuronate and succinic semialdehyde (PubMed:10510318, PubMed:30538128). Functions as a detoxifiying enzyme by reducing a range of toxic aldehydes (By similarity). Reduces methylglyoxal and 3-deoxyglucosone, which are present at elevated levels under hyperglycemic conditions and are cytotoxic (By similarity). Involved also in the detoxification of lipid-derived aldehydes like acrolein (By similarity). Plays a role in the activation of procarcinogens, such as polycyclic aromatic hydrocarbon trans-dihydrodiols, and in the metabolism of various xenobiotics and drugs, including the anthracyclines doxorubicin (DOX) and daunorubicin (DAUN) (PubMed:11306097, PubMed:18276838). Also acts as an inhibitor of protein S-nitrosylation by mediating degradation of S-nitroso-coenzyme A (S-nitroso-CoA), a cofactor required to S- nitrosylate proteins (PubMed:30538128). S-nitroso-CoA reductase activity is involved in reprogramming intermediary metabolism in renal proximal tubules, notably by inhibiting protein S-nitrosylation of isoform 2 of PKM (PKM2) (By similarity). Also acts as a S-nitroso- glutathione reductase by catalyzing the NADPH-dependent reduction of S- nitrosoglutathione (PubMed:31649033). Displays no reductase activity towards retinoids (By similarity).
Cellular Location	Cytoplasm, cytosol {ECO:0000250|UniProtKB:Q9JII6}. Apical cell membrane {ECO:0000250|UniProtKB:Q9JII6}
Tissue Location	Widely expressed. Highly expressed in kidney, salivary gland and liver. Detected in trachea, stomach, brain, lung, prostate, placenta, mammary gland, small intestine and lung

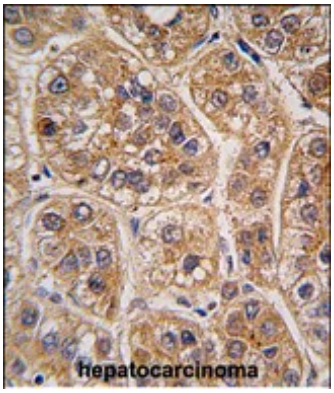
Background

AKR1A1 is a member of the aldo/keto reductase superfamily, which consists of more than 40 known enzymes and proteins. This member, also known as aldehyde reductase, is involved in the reduction of biogenic and xenobiotic aldehydes and is present in virtually every tissue.

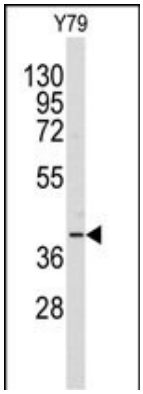
References

Steuber,H.,J. Mol. Biol. 379 (5), 991-1016 (2008)
Bohren,K.M.,Biochim. Biophys. Acta 1748 (2), 201-212 (2005)
El-Kabbani,O.,Acta Crystallogr. D Biol. Crystallogr. 50 (PT 6), 859-868 (1994)

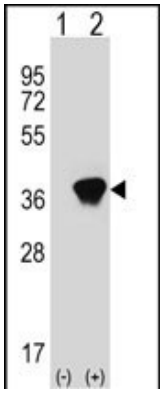
Images



Formalin-fixed and paraffin-embedded human hepatocarcinoma tissue reacted with AKR1A1 antibody (C-term) (Cat.#AP2734b), which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.



Western blot analysis of anti-AKR1A1 Antibody (C-term) (Cat.#AP2734b) in Y79 cell line lysates (35ug/lane). AKR1A1(arrow) was detected using the purified Pab.



Western blot analysis of AKR1A1 (arrow) using rabbit polyclonal AKR1A1 Antibody (C-term) (Cat.#AP2734b). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected (Lane 2) with the AKR1A1 gene.