

**KD-Validated Anti-AKR1A1 Mouse Monoclonal Antibody**  
**Mouse monoclonal antibody**  
**Catalog # AGI1927****Specification****KD-Validated Anti-AKR1A1 Mouse Monoclonal Antibody - Product Information**

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Application       | WB, FC, ICC                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Primary Accession | <a href="#">P14550</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Reactivity        | Human, Mouse                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Clonality         | Monoclonal                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Isotype           | Mouse IgG2b                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Calculated MW     | Predicted, 37 kDa, observed, 37 kDa kDa                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Gene Name         | AKR1A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Aliases           | AKR1A1; Aldo-Keto Reductase Family 1 Member A1; ALR; Aldehyde Reductase; DD3; Dihydrodiol Dehydrogenase 3; Glucuronolactone Reductase; Glucuronate Reductase; EC 1.1.1.2; ALDR1; Aldo-Keto Reductase Family 1, Member A1 (Aldehyde Reductase); Epididymis Secretory Sperm Binding Protein Li 165mP; Epididymis Secretory Protein Li 6; Alcohol Dehydrogenase [NADP(+)]; Alcohol Dehydrogenase; EC 1.1.1.372; HEL-S-165mP; EC 1.1.1.54; EC 1.1.1.19; EC 1.1.1.20; EC 1.1.1; HEL-S-6; ARM |
| Immunogen         | Recombinant protein of human AKR1A1                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

**KD-Validated Anti-AKR1A1 Mouse Monoclonal Antibody - Additional Information**

|                                                                                                                                                                                                                        |       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Gene ID                                                                                                                                                                                                                | 10327 |
| <b>Other Names</b>                                                                                                                                                                                                     |       |
| Aldo-keto reductase family 1 member A1, 1.1.1.2, 1.1.1.372, 1.1.1.54, Alcohol dehydrogenase [NADP(+)], Aldehyde reductase, Glucuronate reductase, 1.1.1.19, S-nitroso-CoA reductase, ScorR, 1.6.-., AKR1A1, ALDR1, ALR |       |

**KD-Validated Anti-AKR1A1 Mouse Monoclonal Antibody - 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:<a href="http://www.uniprot.org/citations/10510318" target="\_blank">10510318</a>, PubMed:<a href="http://www.uniprot.org/citations/30538128" target="\_blank">30538128</a>). 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:<a href="http://www.uniprot.org/citations/10510318" target="\_blank">10510318</a>, PubMed:<a href="http://www.uniprot.org/citations/30538128" target="\_blank">30538128</a>). Functions as a detoxifying 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:<a href="http://www.uniprot.org/citations/11306097" target="\_blank">11306097</a>, PubMed:<a href="http://www.uniprot.org/citations/18276838" target="\_blank">18276838</a>). 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:<a href="http://www.uniprot.org/citations/30538128" target="\_blank">30538128</a>). 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:<a href="http://www.uniprot.org/citations/31649033" target="\_blank">31649033</a>). 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**

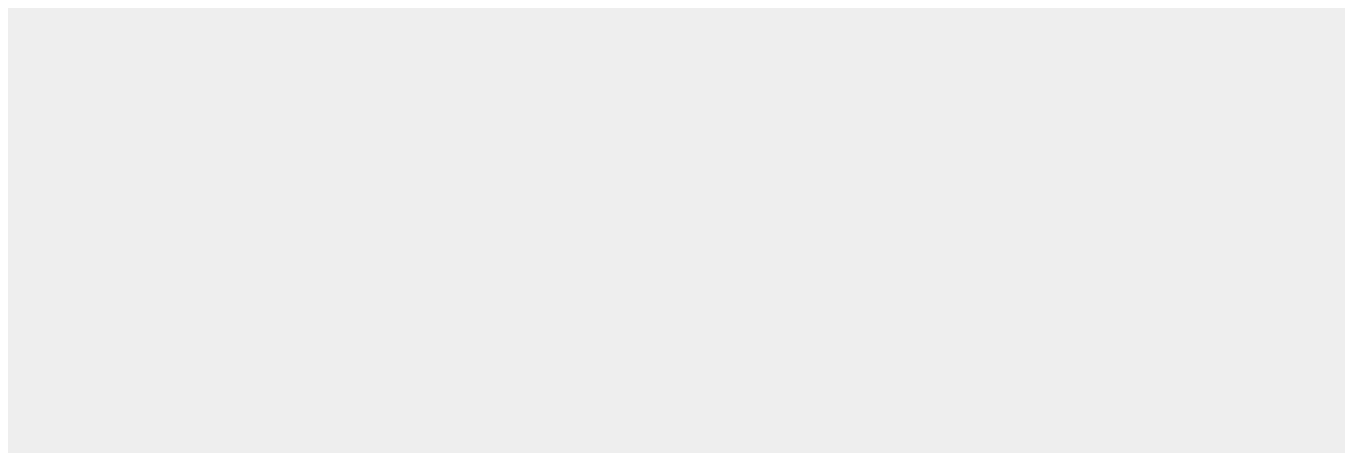
Widely expressed. Highly expressed in kidney, salivary gland and liver. Detected in trachea, stomach, brain, lung, prostate, placenta, mammary gland, small intestine and lung

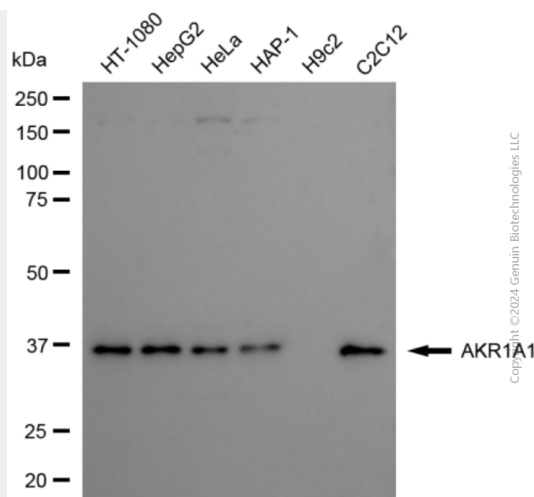
### **KD-Validated Anti-AKR1A1 Mouse Monoclonal Antibody - Protocols**

Provided below are standard protocols that you may find useful for product applications.

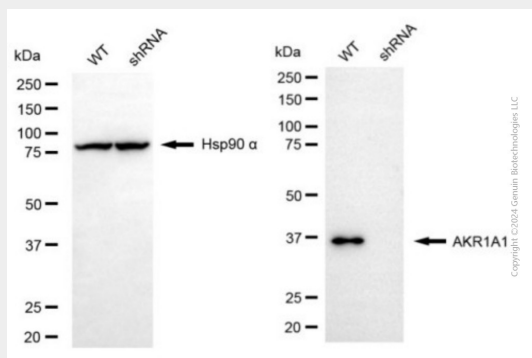
- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

### **KD-Validated Anti-AKR1A1 Mouse Monoclonal Antibody - Images**

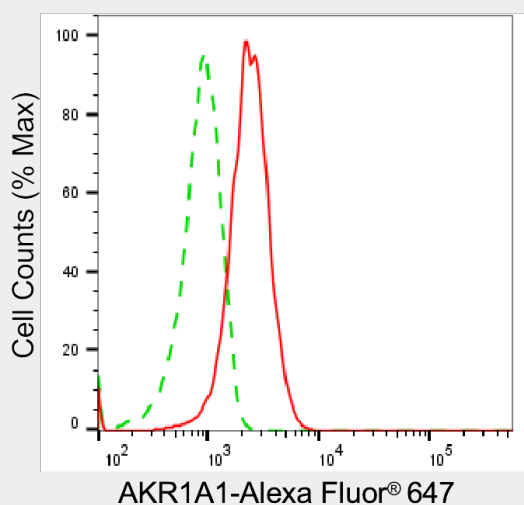




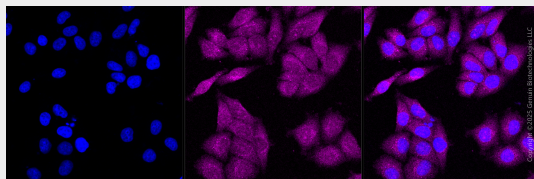
Western blotting analysis using anti-AKR1A1 antibody (Cat#AGI1927). Total cell lysates (30 µg) from various cell lines were loaded and separated by SDS-PAGE. The blot was incubated with anti-AKR1A1 antibody (Cat#AGI1927, 1:5,000) and HRP-conjugated goat anti-mouse secondary antibody respectively.



Western blotting analysis using anti-AKR1A1 antibody (Cat#AGI1927). AKR1A1 expression in wild type (WT) and AKR1A1 shRNA knockdown (KD) HeLa cells with 20 µg of total cell lysates. Hsp90 α serves as a loading control. The blot was incubated with anti-AKR1A1 antibody (Cat#AGI1927, 1:5,000) and HRP-conjugated goat anti-mouse secondary antibody respectively.



Flow cytometric analysis of AKR1A1 expression in HepG2 cells using anti-AKR1A1 antibody (Cat#AGI1927, 1:2,000). Green, isotype control; red, AKR1A1.



Immunocytochemical staining of HepG2 cells with anti-AKR1A1 antibody (Cat#AGI1927, 1:1,000). Nuclei were stained blue with DAPI; AKR1A1 was stained magenta with Alexa Fluor® 647. Images were taken using Leica stellaris 5. Protein abundance based on laser Intensity and Smart Gain□Medium. Scale bar, 20 μm.