Human Aldehyde Dehydrogenase 1-A1/ ALDH1A1 Antibody

Monoclonal Mouse IgG_{2B} Clone # 703410

Catalog Number: MAB5869

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Aldehyde Dehydrogenase 1-A1/ALDH1-A1 in direct ELISAs and Western blots. In direct ELISAs, approximatly 50% cross-reactivity with recombinant human Aldehyde Dehydrogenase 1-A2 is observed.
Source	Monoclonal Mouse IgG_{2B} Clone # 703410
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	*E. coli*-derived recombinant human Aldehyde Dehydrogenase 1-A1/ALDH1-A1 Ser2-Ser501 Accession # P00352
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 μm filtered solution in PBS.

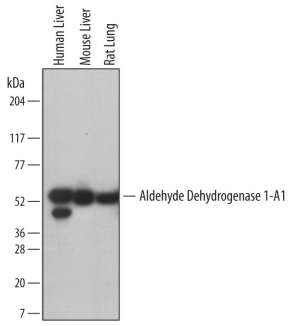
APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Western Blot	2 µg/mL	See Below
Immunocytochemistry	8-25 µg/mL	See Below
Simple Western	20 µg/mL	See Below

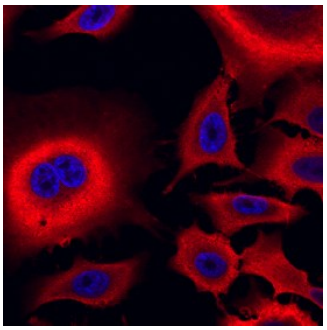
DATA

Western Blot



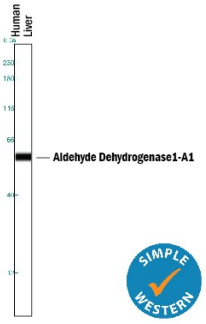
Detection of Human, Mouse, and Rat Aldehyde Dehydrogenase 1-A1/ALDH1A1 by Western Blot. Western blot shows lysates of human liver tissue, mouse liver tissue, and rat lung tissue. PVDF membrane was probed with 2 µg/mL of Mouse Anti-Human Aldehyde Dehydrogenase 1-A1/ALDH1A1 Monoclonal Antibody (Catalog # MAB5869) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF007). A specific band was detected for Aldehyde Dehydrogenase 1-A1/ ALDH1A1 at approximately 54 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

Immunocytochemistry



Aldehyde Dehydrogenase 1-A1/ALDH1A1 in A549 Human Cell Line. Aldehyde Dehydrogenase 1-A1/ALDH1A1 was detected in immersion fixed A549 human lung carcinoma cell line using Mouse Anti-Human Aldehyde Dehydrogenase 1-A1/ALDH1A1 Monoclonal Antibody (Catalog # MAB5869) at 10 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Mouse IgG Secondary Antibody (red; Catalog # NL007) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm. View our protocol for Fluorescent ICC Staining of Cells on Coverslips.

Simple Western



Detection of Human Aldehyde Dehydrogenase 1-A1/ALDH1A1 by Simple Western™. Simple Western lane view shows lysates of human liver tissue, loaded at 0.2 mg/mL. A specific band was detected for Aldehyde Dehydrogenase 1-A1/ALDH1A1 at approximately 58 kDa (as indicated) using 20 µg/mL of Mouse Anti-Human Aldehyde Dehydrogenase 1-A1/ALDH1A1 Monoclonal Antibody (Catalog # MAB5869). This experiment was conducted under reducing conditions and using the 12-230 kDa separation system.

PREPARATION AND STORAGE

Reconstitution	Sterile PBS to a final concentration of 0.5 mg/mL.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

Human Aldehyde Dehydrogenase 1 - A1/ ALDH1A1 Antibody

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BACKGROUND

Aldehyde dehydrogenases (ALDHs) are $NAD(P)^+$-dependent enzymes that detoxify aldehydes by oxidizing them to carboxylic acids. Nineteen ALDHs are present in humans, expressed in a variety of organelles and having different substrate preferences (1). ALDH1A1 is a cytosolic enzyme that preferentially oxidizes retinaldehyde to retinoic acid (2). ALDH1A1 is expressed in the epithelium of many organs, including brain, liver, testis, eye lens and cornea (3). ALDH1A1 is highly expressed in brain dopaminergic neurons, where it produces the retinoic acid required for their differentiation and development (4). The retinoic acid produced by ALDH1A1 is also important for the differentiation of hematopoietic stem cells (5). ALDH1A1 is a major enzyme in the oxidation of acetaldehyde, a toxic metabolite of ethanol (6).

References:

1. Marchitti, S.A. *et al.* (2008) Expert Opin. Drug Metab. Toxicol. **4**:697.
2. Zhao, D. *et al.* (1996) Eur. J. Biochem. **240**:15.
3. King, G. and Holmes, R. (1997) Adv. Exp. Med. Biol. **414**:19.
4. Jacobs, F.M. *et al.* (2007) Development **134**:2673.
5. Chute, J.P. *et al.* (2006) Proc. Natl. Acad. Sci. USA. **103**:11707.
6. Ueshima, Y. *et al.* (1993) Alcohol Alcohol. **1B**:15.