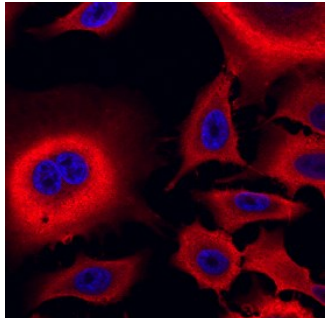
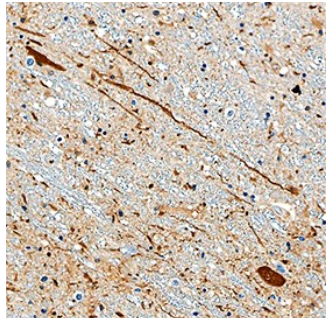


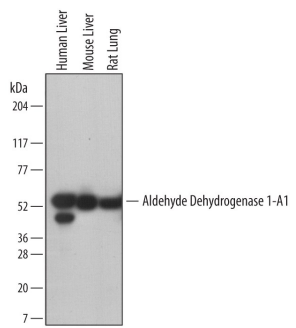
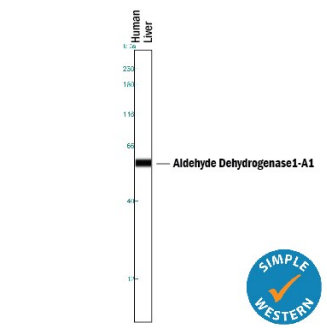
DESCRIPTION	
<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human Aldehyde Dehydrogenase 1-A1/ALDH1-A1 in direct ELISAs and Western blots. In direct ELISAs, approximately 50% cross-reactivity with recombinant human Aldehyde Dehydrogenase 1-A2 is observed.
<b>Source</b>	Monoclonal Mouse IgG <sub>2B</sub> Clone # 703410
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant human Aldehyde Dehydrogenase 1-A1/ALDH1-A1 Ser2-Ser501 Accession # P00352
<b>Formulation</b>	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	
<b>Please Note:</b> Optimal dilutions should be determined by each laboratory for each application. <i>General Protocols</i> are available in the <i>Technical Information</i> section on our website.	

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

## DATA

Immunocytochemistry	Immunohistochemistry
 <p><b>Aldehyde Dehydrogenase 1-A1/ALDH1A1 in A549 Human Cell Line.</b> 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 <a href="#">Fluorescent ICC Staining of Cells on Coverslips</a>.</p>	 <p><b>Aldehyde Dehydrogenase 1-A1/ALDH1A1 in Human Brain.</b> Aldehyde Dehydrogenase 1-A1/ALDH1A1 was detected in immersion fixed paraffin-embedded sections of human brain (substantia nigra) using Mouse Anti-Human Aldehyde Dehydrogenase 1-A1/ALDH1A1 Monoclonal Antibody (Catalog # MAB5869) at 5 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Mouse HRP-DAB Cell &amp; Tissue Staining Kit (brown; Catalog # CTS002) and counterstained with hematoxylin (blue). Specific staining was localized to neurons. View our protocol for <a href="#">Chromogenic IHC Staining of Paraffin-embedded Tissue Sections</a>.</p>

Western Blot	Simple Western
 <p><b>Detection of Human, Mouse, and Rat Aldehyde Dehydrogenase 1-A1/ALDH1A1 by Western Blot.</b> 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 <a href="#">Immunoblot Buffer Group 1</a>.</p>	 <p><b>Detection of Human Aldehyde Dehydrogenase 1-A1/ALDH1A1 by Simple Western™.</b> 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.</p>

PREPARATION AND STORAGE	
<b>Reconstitution</b>	Sterile PBS to a final concentration of 0.5 mg/mL.
<b>Shipping</b>	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
<b>Stability &amp; Storage</b>	<b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b> <ul style="list-style-type: none"> <li>• 12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> <li>• 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

## BACKGROUND

Aldehyde dehydrogenases (ALDHs) are NAD(P)<sup>+</sup>-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:

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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.