

## DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human Aldehyde Dehydrogenase 3-A1/ALDH3A1 in direct ELISAs and Western blots.
<b>Source</b>	Polyclonal Sheep IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant human Aldehyde Dehydrogenase 3-A1/ALDH3A1 Ser2-His453 Accession # P30838
<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.

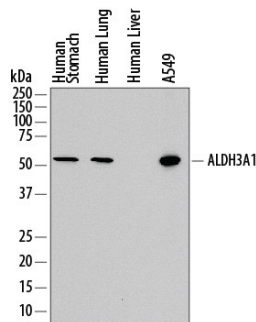
## APPLICATIONS

**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
<b>Western Blot</b>	0.25 µg/mL	See Below
<b>Immunocytochemistry</b>	5-15 µg/mL	See Below
<b>Immunohistochemistry</b>	3-15 µg/mL	See Below

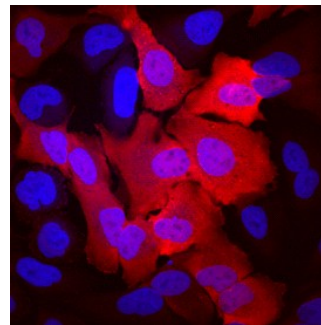
## DATA

### Western Blot



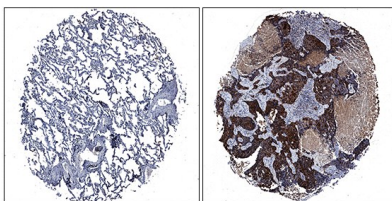
**Detection of Human Aldehyde Dehydrogenase 3-A1/ALDH3A1 by Western Blot.** Western blot shows lysates of human stomach tissue, human lung tissue, human liver tissue, and A549 human lung carcinoma cell line. PVDF membrane was probed with 0.25 µg/mL of Sheep Anti-Human Aldehyde Dehydrogenase 3-A1/ALDH3A1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF6705) followed by HRP-conjugated Anti-Sheep IgG Secondary Antibody (Catalog # HAF016). A specific band was detected for Aldehyde Dehydrogenase 3-A1/ALDH3A1 at approximately 55 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

### Immunocytochemistry



**Aldehyde Dehydrogenase 3-A1/ALDH3A1 in A549 Human Cell Line.** Aldehyde Dehydrogenase 3-A1/ALDH3A1 was detected in immersion fixed A549 human lung carcinoma cell line using Sheep Anti-Human Aldehyde Dehydrogenase 3-A1/ALDH3A1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF6705) at 10 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Sheep IgG Secondary Antibody (red; Catalog # NL010) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm and nuclei. View our protocol for [Fluorescent ICC Staining of Cells on Coverslips](#).

### Immunohistochemistry



Normal Tissue

Cancer

**Aldehyde Dehydrogenase 3-A1/ALDH3A1 in Human Normal Lung and Lung Cancer Tissue.** Aldehyde Dehydrogenase 3-A1/ALDH3A1 was detected in immersion fixed paraffin-embedded sections of human normal lung and lung cancer tissue using Sheep Anti-Human Aldehyde Dehydrogenase 3-A1/ALDH3A1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF6705) at 3 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Sheep HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS019) and counterstained with hematoxylin (blue). Specific staining was localized to cytoplasm of cancer cells. View our protocol for [Chromogenic IHC Staining of Paraffin-embedded Tissue Sections](#).

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Sterile PBS to a final concentration of 0.2 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

ALDH3A1 (Aldehyde dehydrogenase 3; also aldehyde dehydrogenase, dimeric NADP-preferring) is a 51-55 kDa, nuclear and cytosolic member of the ALDH3 family, ALDH superfamily of enzymes. It has widespread expression, being found in pancreatic acinar cells, corneal epithelium and stromal keratocytes, stem cells, and likely the epithelium of the jejunum. ALDH3A1 has many activities, including the detoxification of lipid peroxidation-derived medium chain (>5 carbon) aldehydes, the absorption of UV light in the cornea, acting as an antioxidant through the production of NADPH, and the extension of the cell cycle in expressing cells by reducing cyclin-dependent kinase activity. Notably, the critically important absorption of UVB light by ALDH3A1 in the cornea induces its aggregation and renders the molecule inactive as an enzyme. Human ALDH3A1 is 453 amino acids (aa) in length. It contains four acetylated lysines and a general catalytic region between aa 5-447. There are potentially six splice variants, one of which shows a 130 aa substitution for aa 1-247. Over aa 2-453, human ALDH3A1 shares 80% and 61% aa sequence identity with mouse ALDH3A1 and human ALDH3A2, respectively.