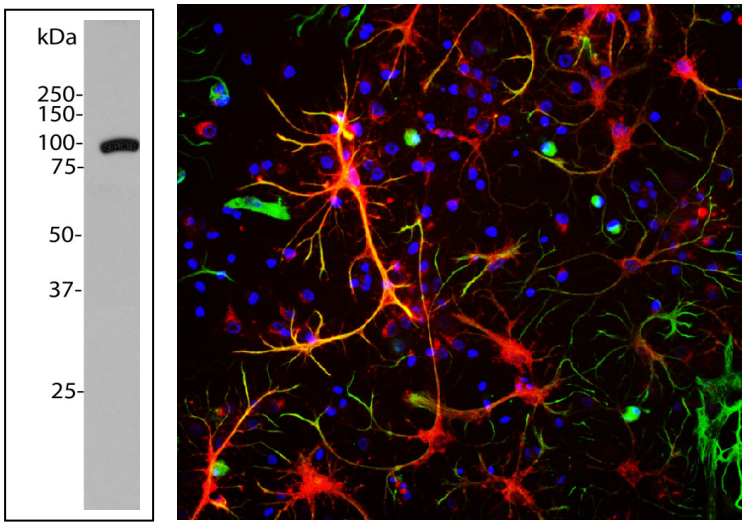
4949 SW 41st Blvd.
Suites 40 & 50
Gainesville, FL 32608
Tel: (352) 372 7022
Fax: (352) 372 7066
admin@encorbio.com

Catalogue# MCA-2E7: Mouse Monoclonal Antibody to Aldehyde Dehydrogenase H1 L1

The Immunogen: Aldehyde dehydrogenases (ALDH) are a group of enzymes that catalyze oxidation (dehydrogenation) of aldehydes. To date, nineteen ALDH genes have been identified within the human genome. They belong to 15 families in ALDH superfamily. Among these, aldehyde dehydrogenase family 1, member 1 (ALDH1L1) catalyzes the conversion of 10-formyltetrahydrofolate, nicotinamide adenine dinucleotide phosphate (NADP+), and water to tetrahydrofolate, NADPH, and carbon dioxide. ALDH1L1 expression is tissue-specific and is highly expressed in the liver, representing up to 1% of the total pool of soluble cell proteins in the mammalian liver (1).

In an earlier study, Cahoy *et al.* applied FACS (Fluorescent-Activated Cell Sorting) to isolate astrocytes from EGFP (Enhanced Green Fluorescent Protein) transgenic-mouse, and then created a transcriptome database of the expression levels of 20,000 genes by gene profiling of neurons, astrocytes and oligodendrocytes using Affymetrix GeneChip Arrays (2). They identified ALDH1L1 as a highly and specifically expressed gene in astrocytes. ALDH1L1 is more widely expressed throughout the brains, while astrocyte marker GFAP shows more predominant expression in white matter. In addition, loss of function or expression of ALDH1L1 is associated with decreased apoptosis, increased cell motility, and cancer progression, suggesting its role as a biomarker and a target in cancer therapy (3,4,5).

Monoclonal antibody MCA-2E7 was raised against amino acids 402-902 of human ALDH1L1 expressed in and purified from *E. coli.* The HGNC name for this protein is ALDH1L1.



Left: Blot of rat liver tissue homogenates blotted with MCA-2E7. MCA-2E7 binds strongly to a band at ~100 kDa. **Right:** Neuron-glia cell mixed cultures stained with MCA-2E7 (red) and our chicken polyclonal antibody against vimentin (**CPCA-Vim**) in green. Nuclei are labeled with Dapi (blue). MCA-2E7 stains astrocytic cell bodies and processes. The fibroblastic cells contain only vimentin and so are green, while astrocytes contain either vimentin and ALDH1L1, so appearing golden, or predominantly ALDH1L1, which appears red.

Antibody characteristics: MCA-2E7 is an IgG1 class antibody with a κ light chain. It reacts with ALDH1L1 from human, cow, pig, mouse, rat and other mammals.

Suggestions for use: The antibody solution is affinity purified from tissue culture supernatant and is at concentration of 1mg/mL in phosphate buffered saline. We can also provide the antibody in tissue culture supernatant form. The antibody solution can be used at dilutions of at least 1:2,000 in immunofluorescence experiments. In western blotting using chemiluminescence it can be used at dilutions of 1:5,000-1:10,000 or

lower. Antibody preparation contains 10 mM sodium azide preservative (Link to http://www.encorbio.com/MSDS/azide.htm for Material Safety Data Sheet).

Storage Instructions: Shipped on ice. Please store at 4°C for regular uses. For long term storage, please leave frozen at -20°C and avoid freeze/thaw cycles.

Limitations: This product is for research use only and is not approved for use in humans or in clinical diagnosis.

References:

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