Catalogue# MCA-E9: Mouse Monoclonal Antibody to Aldolase C

**The Immunogen:** Aldolases are glycolytic enzymes that catalyze the reversible aldol cleavage of fructose 1,6-bisphosphate and fructose-1-phosphate to dihydroxyacetone phosphate and either glyceraldehyde 3-phosphate or glyceraldehyde, respectively. Three aldolase isozymes are found in mammals, specifically aldolases A, B, and C, each of which is encoded by a separate gene. Aldolase A is generally considered to be a muscle enzyme. Northern analysis of cultured cells suggests that it is present in both neurons and glia (1). Aldolase B is considered to be a liver-specific enzyme and it is transcriptionally activated by signals from hormones and dietary factors (2). In the adult, aldolase C is the brain-specific isozyme, with low but detectable activity in fetal tissues (1, 3-6). Aldolase C shares 81% amino acid identity with aldolase A and 70% identity with aldolase B. Earlier studies using isozyme-specific antibodies report its location in gray matter astrocytes and cells of the pia mater (5, 8). *In situ* hybridization of mouse central nervous system using isozyme-specific probes revealed that aldolase A and C are expressed in complementary cell types: aldolase A mRNA is found in neurons; aldolase C message is detected in astrocytes, some cells of the pia mater, and Purkinje cells (9). Aldolase C can in some situations be used as an astrocyte marker. However Purkinje cells of the cerebellum contain high levels of the enzyme, so the enzyme is not totally astrocyte specific. MCA-E9 was raised against full length recombinant human Aldolase C protein expressed and purified from *E. coli*. The HGNC name for this protein is ALDOC.

**Left:** Blots of rat brain lysate blotted with MCA-E9. The MCA-E9 monoclonal binds strongly and cleanly to a band at about 40 kDa. **Right:** View of mixed neuron/glial cultures stained with MCA-E9 (red) and our chicken antibody to GFAP antibody (CPCA-GFAP, green). MCA-E9 antibody reveals strong cytoplasmic staining in astrocytes. Blue is a DNA stain. Aldolase stains the astrocytes cell body and processes, whereas GFAP labels the intermediate filament of the cytoskeleton in subset of astrocytes.

**Antibody characteristics:** MCA-E9 is a mouse IgG1 class antibody with a \( \kappa \) light chain. MCA-E9 recognizes aldolase C specifically both in western blots and in immunocytochemical experiments. On blots MCA-E9 reveals a prominent 40 kDa band.

**Suggestions for use:** The antibody is affinity purified at concentration of 1mg/mL. The antibody solution can be used at dilutions of at least 1:1,000-1:5,000 in immunofluorescence experiments. In western blotting using chemiluminescence it can be used at dilutions of 1:10,000 or lower.

**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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