

DESCRIPTION	
Species Reactivity	Human
Specificity	Detects a synthetic peptide corresponding to residues near amino acid 400 of human CS protein in Direct ELISA.
Source	Monoclonal Mouse IgG _{2A} Clone # 1081813
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Synthetic Peptide Accession # O75390
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose.

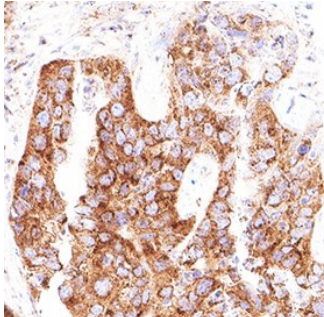
APPLICATIONS

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
Immunohistochemistry	3-25 µg/mL	Immersion fixed paraffin-embedded sections of human liver cancer

DATA

Immunohistochemistry



Detection of CS Citrate Synthase in Human Liver Cancer. CS Citrate Synthase was detected in immersion fixed paraffin-embedded sections of human liver cancer using Mouse Anti-Human CS Citrate Synthase Monoclonal Antibody (Catalog # MAB11583) at 5 µg/ml for 1 hour at room temperature followed by incubation with the Anti-Mouse IgG VisUCyte™ HRP Polymer Antibody (Catalog # VC001). Before incubation with the primary antibody, tissue was subjected to heat-induced epitope retrieval using VisUCyte Antigen Retrieval Reagent-Basic (Catalog # VCTS021). Tissue was stained using DAB (brown) and counterstained with hematoxylin (blue). Specific staining was localized to the cytoplasm. View our protocol for IHC Staining with VisUCyte HRP Polymer Detection Reagents.

PREPARATION AND STORAGE

Reconstitution	Reconstitute lyophilized material at 0.2 mg/ml in sterile PBS. For liquid material, refer to CoA for concentration.
Shipping	Lyophilized product is shipped at ambient temperature. Liquid small pack size (-SP) is shipped with polar packs. Upon receipt, store immediately at the temperature recommended below.
Stability & Storage	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <ul style="list-style-type: none"> • 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.

BACKGROUND

Citrate Synthase (CS) is a 52kDa enzyme found in nearly all cells capable of oxidative metabolism. This enzyme is the first step of the tricarboxylic acid (TCA) cycle and is found in the mitochondrial matrix. Citrate Synthase is commonly used as a marker for the presence of intact mitochondria. Loss of CS facilitates cytosolic glycolysis and results in epithelial-mesenchymal transition (EMT) and tumor malignancy.

References:

1. Wiegand G, Remington SJ. Citrate synthase: structure, control, and mechanism. *Annu Rev Biophys Biophys Chem.* 1986;**15**:97-117. doi: 10.1146/annurev.bb.15.060186.000525. PMID: 3013232.
2. Gillen JB, Martin BJ, MacInnis MJ, Skelly LE, Tarnopolsky MA, Gibala MJ. Twelve Weeks of Sprint Interval Training Improves Indices of Cardiometabolic Health Similar to Traditional Endurance Training despite a Five-Fold Lower Exercise Volume and Time Commitment. *PLoS One.* 2016 Apr 26;**11**(4):e0154075. doi: 10.1371/journal.pone.0154075. PMID: 27115137; PMCID: PMC4846072.
3. Zhou L, Ou S, Liang T, Li M, Xiao P, Cheng J, Zhou J, Yuan L. MAEL facilitates metabolic reprogramming and breast cancer progression by promoting the degradation of citrate synthase and fumarate hydratase via chaperone-mediated autophagy. *FEBS J.* 2023 Jul;**290**(14):3614-3628. doi: 10.1111/febs.16768. Epub 2023 Mar 12. PMID: 36866961.