

SDHA (F-2): sc-390381

BACKGROUND

In aerobic respiration reactions, succinate dehydrogenase (SDH) catalyzes the oxidation of succinate and ubiquinone to fumarate and ubiquinol. Four subunits comprise the SDH protein complex: a flavochrome subunit (SDHA), an iron-sulfur protein (SDHB), and two membrane-bound subunits (SDHC and SDHD) anchored to the inner mitochondrial membrane. Mutations to these subunits cause mitochondrial dysfunction, corresponding to several distinct disorders. Mutations in the membrane bound components may cause hereditary paraganglioma, while SDHA mutations are associated with juvenile encephalopathy as well as Leigh syndrome, a severe neurological disorder. Inactivating mutations in SDHB correlate with inherited, but not necessarily sporadic, cases of pheochromocytoma.

REFERENCES

- Spencer, M.E., et al. 1974. Proteins of the inner membrane of *Escherichia coli*: identification of succinate dehydrogenase by polyacrylamide gel electrophoresis with *sdh* amber mutants. *J. Bacteriol.* 117: 947-953.
- Wolf, P., et al. 1975. Histochemical investigations on the presence of acetylcholinesterase and succinic dehydrogenase in fetal human spinal cord and brain stem at different stages of development. *Eur. Neurol.* 13: 31-46.

CHROMOSOMAL LOCATION

Genetic locus: SDHA (human) mapping to 5p15.33; *Sdha* (mouse) mapping to 13 C1.

SOURCE

SDHA (F-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 637-664 at the C-terminus of SDHA of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SDHA (F-2) is available conjugated to agarose (sc-390381 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-390381 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390381 PE), fluorescein (sc-390381 FITC), Alexa Fluor® 488 (sc-390381 AF488), Alexa Fluor® 546 (sc-390381 AF546), Alexa Fluor® 594 (sc-390381 AF594) or Alexa Fluor® 647 (sc-390381 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-390381 AF680) or Alexa Fluor® 790 (sc-390381 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-390381 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

SDHA (F-2) is recommended for detection of precursor and mature SDHA of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

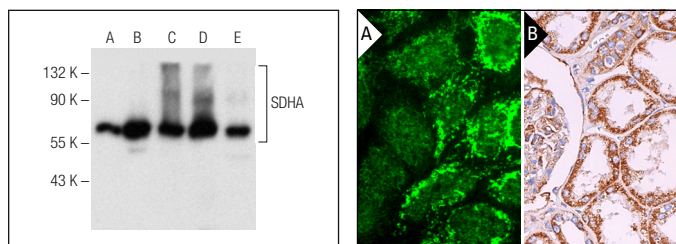
SDHA (F-2) is also recommended for detection of precursor and mature SDHA in additional species, including porcine.

Suitable for use as control antibody for SDHA siRNA (h): sc-61834, SDHA siRNA (m): sc-61835, SDHA shRNA Plasmid (h): sc-61834-SH, SDHA shRNA Plasmid (m): sc-61835-SH, SDHA shRNA (h) Lentiviral Particles: sc-61834-V and SDHA shRNA (m) Lentiviral Particles: sc-61835-V.

Molecular Weight of SDHA: 70 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, human heart extract: sc-363763 or mouse heart extract: sc-2254.

DATA



SDHA (F-2): sc-390381. Western blot analysis of SDHA expression in HeLa whole cell lysate (A) and human heart (B), rat heart (C), mouse heart (D) and mouse brain (E) tissue extracts.

SDHA (F-2): sc-390381. Immunofluorescence staining of formalin-fixed A-431 cells showing mitochondrial localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in glomeruli and cells in tubules (B).

SELECT PRODUCT CITATIONS

- Kshattry, S., et al. 2019. Enzyme-mediated depletion of l-cyst(e)ine synergizes with thioredoxin reductase inhibition for suppression of pancreatic tumor growth. *NPJ Precis. Oncol.* 3: 16.
- Cai, Z., et al. 2020. Phosphorylation of PDHA by AMPK drives TCA cycle to promote cancer metastasis. *Mol. Cell* 80: 263-278.e7.
- Todkar, K., et al. 2021. Selective packaging of mitochondrial proteins into extracellular vesicles prevents the release of mitochondrial DAMPs. *Nat. Commun.* 12: 1971.
- Wang, X., et al. 2022. Hepatic suppression of mitochondrial complex II assembly drives systemic metabolic benefits. *Adv. Sci.* 9: e2105587.

RESEARCH USE

For research use only, not for use in diagnostic procedures.