

CLS1 (E-8): sc-514986

BACKGROUND

Cardiolipin synthetase, CLS1, is a mitochondrial protein that belongs to the CDP-alcohol phosphatidyltransferase class-I family. CLS1 is a multi-pass membrane protein localized to the inner membrane of mitochondria. CLS1 is responsible for the catalyzing the reversible transfer of a phosphatidyl group from one phosphatidyl glycerol molecule to another. This process results in the formation of cardiolipin (CL, or diphosphatidyl glycerol) and glycerol. Diphosphatidyl glycerol is a major component of the mitochondrial membrane and constitutes roughly 20% of total mitochondrial lipids. Having four fatty acid tails rather than the usual two, CL is a double phospholipid that is synthesized in the mitochondrion itself. Defects in the CRLS1 gene are likely to effect metabolism, sustained production of ATP and could contribute to diseases such as Barth syndrome.

REFERENCES

1. Taylor, W.A., et al. 2002. Expression of monolysocardiolipin acyltransferase activity is regulated in concert with the level of cardiolipin and cardiolipin biosynthesis in the mammalian heart. *BMC Biochem.* 3: 9.
2. Zhong, Q., et al. 2004. Absence of cardiolipin results in temperature sensitivity, respiratory defects, and mitochondrial DNA instability independent of pet56. *J. Biol. Chem.* 279: 32294-32300.
3. Chen, D., et al. 2006. Identification and functional characterization of hCLS1, a human cardiolipin synthase localized in mitochondria. *Biochem. J.* 398: 169-176.
4. Houtkooper, R.H., et al. 2006. Identification and characterization of human cardiolipin synthase. *FEBS Lett.* 580: 3059-3064.
5. Lu, B., et al. 2006. Cloning and characterization of a cDNA encoding human cardiolipin synthase (hCLS1). *J. Lipid Res.* 47: 1140-1145.

CHROMOSOMAL LOCATION

Genetic locus: CRLS1 (human) mapping to 20p12.3.

SOURCE

CLS1 (E-8) is a mouse monoclonal antibody raised against amino acids 88-301 mapping at the C-terminus of CLS1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CLS1 (E-8) is available conjugated to agarose (sc-514986 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-514986 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514986 PE), fluorescein (sc-514986 FITC), Alexa Fluor® 488 (sc-514986 AF488), Alexa Fluor® 546 (sc-514986 AF546), Alexa Fluor® 594 (sc-514986 AF594) or Alexa Fluor® 647 (sc-514986 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514986 AF680) or Alexa Fluor® 790 (sc-514986 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

CLS1 (E-8) is recommended for detection of CLS1 of 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for CLS1 siRNA (h): sc-72929, CLS1 shRNA Plasmid (h): sc-72929-SH and CLS1 shRNA (h) Lentiviral Particles: sc-72929-V.

Molecular Weight of CLS1: 33 kDa.

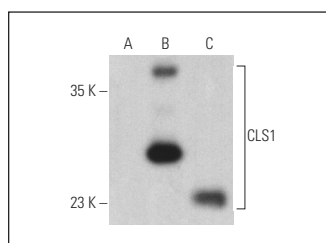
Positive Controls: Hep G2 cell lysate: sc-2227 or human CLS1 transfected 293T whole cell lysate.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:

- 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.
- 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).
- 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



CLS1 (E-8): sc-514986. Western blot analysis of CLS1 expression in non-transfected 293T (A), human CLS1 transfected 293T (B) and Hep G2 (C) whole cell lysates. Detection reagent used: m-IgG₁ BP-HRP: sc-525408.

SELECT PRODUCT CITATIONS

1. Serricchio, M., et al. 2018. Cardiolipin synthesizing enzymes form a complex that interacts with cardiolipin-dependent membrane organizing proteins. *Biochim. Biophys. Acta Mol. Cell Biol. Lipids* 1863: 447-457.

STORAGE

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

RESEARCH USE

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