SANTA CRUZ BIOTECHNOLOGY, INC.

FLAD1 (G-4): sc-376819

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

FLAD1 (FAD1 flavin adenine dinucleotide synthetase), also known as FAD1, FADS, PP591 or molybdenum cofactor biosynthesis protein-like, is a 587 amino acid protein where its N-terminus belongs to the moaB/mog family and its C-terminus belongs to the PAPS reductase family. Existing as five alternatively spliced isoforms, FLAD1 localizes to the cytoplasm and utilizes magnesium as a cofactor. FLAD1 is a key enzyme in the metabolic pathway that converts riboflavin into the redox cofactor flavin adenine dinucleotide (FAD). It is suggested that the molybdenum cofactor biosynthesis protein-like region of FLAD1 may not be functional. FLAD1 is encoded by a gene located on human chromosome 1, which spans 260 million base pairs, contains over 3,000 genes and comprises nearly 8% of the human genome. Aberrations in chromosome 1 are found in a variety of cancers, including head and neck cancer, malignant melanoma and multiple myeloma.

REFERENCES

1. Wu, M., et al. 1995. Cloning and characterization of FAD1, the structural gene for flavin adenine dinucleotide synthetase of *Saccharomyces cerevisiae*. Mol. Cell. Biol. 15: 264-271.
2. Barile, M., et al. 2000. The riboflavin/FAD cycle in rat liver mitochondria. Eur. J. Biochem. 267: 4888-4900.
3. Brizio, C., et al. 2006. Over-expression in *Escherichia coli* and characterization of two recombinant isoforms of human FAD synthetase. Biochem. Biophys. Res. Commun. 344: 1008-1016.

CHROMOSOMAL LOCATION

Genetic locus: FLAD1 (human) mapping to 1q21.3; Flad1 (mouse) mapping to 3 F1.

SOURCE

FLAD1 (G-4) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 157-195 within an internal region of FLAD1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

FLAD1 (G-4) is available conjugated to agarose (sc-376819 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376819 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376819 PE), fluorescein (sc-376819 FITC), Alexa Fluor® 488 (sc-376819 AF488), Alexa Fluor® 546 (sc-376819 AF546), Alexa Fluor® 594 (sc-376819 AF594) or Alexa Fluor® 647 (sc-376819 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376819 AF680) or Alexa Fluor® 790 (sc-376819 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376819 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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APPLICATIONS

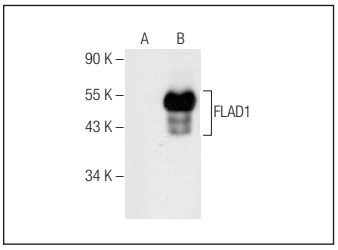
FLAD1 (G-4) is recommended for detection of FLAD1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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).

Suitable for use as control antibody for FLAD1 siRNA (h): sc-88309, FLAD1 siRNA (m): sc-145197, FLAD1 shRNA Plasmid (h): sc-88309-SH, FLAD1 shRNA Plasmid (m): sc-145197-SH, FLAD1 shRNA (h) Lentiviral Particles: sc-88309-V and FLAD1 shRNA (m) Lentiviral Particles: sc-145197-V.

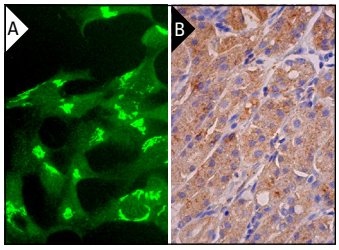
Molecular Weight of FLAD1: 63 kDa.

Positive Controls: FLAD1 (h): 293T Lysate: sc-114919, K-562 whole cell lysate: sc-2203 or MIA PaCa-2 cell lysate: sc-2285.

DATA



FLAD1 (G-4): sc-376819. Western blot analysis of FLAD1 expression in non-transfected: sc-117752 (**A**) and human FLAD1 transfected: sc-114919 (**B**) 293T whole cell lysates.



FLAD1 (G-4): sc-376819. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human upper stomach tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Marceau, C.D., et al. 2016. Genetic dissection of Flaviviridae host factors through genome-scale CRISPR screens. Nature 535: 159-163.
2. Genc, A.M., et al. 2020. Elimination of a retinal riboflavin binding protein exacerbates degeneration in a model of cone-rod dystrophy. Invest. Ophthalmol. Vis. Sci. 61: 17.

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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.