SANTA CRUZ BIOTECHNOLOGY, INC.

GPD1L (AT14E2): sc-517404

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Voltage-gated sodium channels drive the initial depolarization phase of the cardiac action potential and, therefore, critically determine conduction of excitation through the heart. As a member of the NAD-dependent glycerol-3-phosphate dehydrogenase family, glycerol-3 phosphate dehydrogenase-1 like (GPD1L) is a 351 amino acid protein that catalyzes the formation of glycerone phosphate and NADH from sn-glycerol 3-phosphate and NAD^+. GPD1L is thought to affect trafficking of the cardiac sodium current to the cell surface. With highest expression in the heart, mutations in the gene encoding GPD1L contribute to a small percentage of Brugada syndrome type 2 (BRS2) cases, an autosomal dominant cardiac disease characterized by a right bundle branch block and ST elevation, resulting in ventricular fibrillation. GPD1L gene mutations are also thought to contribute to sudden infant death syndrome (SIDS).

REFERENCES

1. Cerrone, M., et al. 2001. Long QT syndrome and Brugada syndrome: 2 aspects of the same disease? Ital. Heart J. 2: 253-257.
2. Grant, A.O. 2001. Molecular biology of sodium channels and their role in cardiac arrhythmias. Am. J. Med. 110: 296-305.
3. Papadatos, G.A., et al. 2002. Slowed conduction and ventricular tachycardia after targeted disruption of the cardiac sodium channel gene Scn5a. Proc. Natl. Acad. Sci. USA 99: 6210-6215.
4. Clancy, C.E., et al. 2002. Na^+ channel mutation that causes both Brugada and long-QT syndrome phenotypes: a simulation study of mechanism. Circulation 105: 1208-1213.
5. Van Norstrand, D.W., et al. 2007. Molecular and functional characterization of novel glycerol-3-phosphate dehydrogenase 1 like gene (GPD1-L) mutations in sudden infant death syndrome. Circulation 116: 2253-2259.
6. London, B., et al. 2007. Mutation in glycerol-3-phosphate dehydrogenase 1 like gene (GPD1-L) decreases cardiac Na^+ current and causes inherited arrhythmias. Circulation 116: 2260-2268.
7. Makiyama, T., et al. 2008. Mutation analysis of the glycerol-3 phosphate dehydrogenase-1 like (GPD1L) gene in Japanese patients with Brugada syndrome. Circ. J. 72: 1705-1706.

CHROMOSOMAL LOCATION

Genetic locus: GPD1L (human) mapping to 3p22.3; Gpd1l (mouse) mapping to 9 F3.

SOURCE

GPD1L (AT14E2) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 1-351 of GPD1L of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide, 1% glycerol and 0.1% gelatin.

APPLICATIONS

GPD1L (AT14E2) is recommended for detection of GPD1L of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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), flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for GPD1L siRNA (h): sc-78210, GPD1L siRNA (m): sc-145684, GPD1L shRNA Plasmid (h): sc-78210-SH, GPD1L shRNA Plasmid (m): sc-145684-SH, GPD1L shRNA (h) Lentiviral Particles: sc-78210-V and GPD1L shRNA (m) Lentiviral Particles: sc-145684-V.

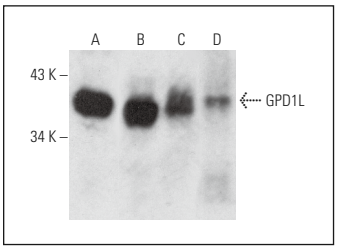
Molecular Weight of GPD1L: 38 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, human skeletal muscle extract: sc-363776 or human heart extract: sc-363763.

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



GPD1L (AT14E2): sc-517404. Western blot analysis of GPD1L expression in MCF7 whole cell lysate (**A**) and human skeletal muscle (**B**), human heart (**C**) and mouse heart (**D**) tissue extracts.

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.