SANTA CRUZ BIOTECHNOLOGY, INC.

DRP1 (6Z-82): sc-101270

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Dynamin-related protein 1 (DRP1) mediates outer mitochondrial membrane fission in mammalian cells. DRP1 is also known as Dynamin-like protein 1, (Dlp1), DVLP or Dymple. DRP1 contains the N-terminal tripartite GTP-binding domain characteristic of the Dynamin superfamily of GTPases. DRP1 exists as a T-shaped dimer which contains a head, leg and stalk. The addition of GTP induces a rearrangement of the head and stalk that generates a force that ultimately results in membrane constriction. DRP1 is ubiquitously expressed with abundant expression in skeletal muscle, heart, kidney and brain. In the cell, DRP1 localizes to the perinuclear region. In mouse brain, DRP1 is highly expressed in the cerebellum with particularly high levels in cerebellar Purkinje cells. During apoptosis, DRP1 translocates from the cytosol to mitochondria and localizes to potential sites of organelle division. Cell death is averted upon DRP inhibition, suggesting a critical role for mitochondrial fission in apoptosis.

CHROMOSOMAL LOCATION

Genetic locus: DNM1L (human) mapping to 12p11.21; Dnm1l (mouse) mapping to 16 A2.

SOURCE

DRP1 (6Z-82) is a mouse monoclonal antibody raised against recombinant DRP1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

DRP1 (6Z-82) is recommended for detection of DRP1 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), 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 DRP1 siRNA (h): sc-43732, DRP1 siRNA (m): sc-45953, DRP1 shRNA Plasmid (h): sc-43732-SH, DRP1 shRNA Plasmid (m): sc-45953-SH, DRP1 shRNA (h) Lentiviral Particles: sc-43732-V and DRP1 shRNA (m) Lentiviral Particles: sc-45953-V.

Molecular Weight of DRP1: 80 kDa.

Positive Controls: HCT-116 whole cell lysate: sc-364175, HeLa whole cell lysate: sc-2200 or K-562 whole cell lysate: sc-2203.

STORAGE

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

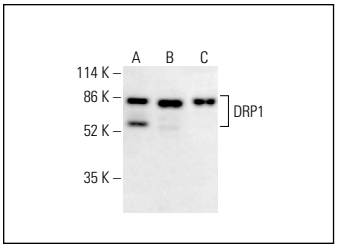
PROTOCOLS

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

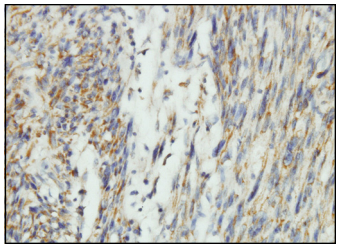
RESEARCH USE

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

DATA



DRP1 (6Z-82): sc-101270. Western blot analysis of DRP1 expression in HeLa (**A**), K-562 (**B**) and HCT-116 (**C**) whole cell lysates. Detection reagent used: m-IgG_{2b} BP-HRP: sc-542741.



DRP1 (6Z-82): sc-101270. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human leiomyosarcoma tissue showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Wang, Z., et al. 2012. The mitochondrial phosphatase PGAM5 functions at the convergence point of multiple necrotic death pathways. Cell 148: 228-243.
2. Wang, P., et al. 2015. Dynamin-related protein DRP1 is required for Bax translocation to mitochondria in response to irradiation-induced apoptosis. Oncotarget 6: 22598-22612.
3. Wu, B., et al. 2017. Succinate-induced neuronal mitochondrial fission and hexokinase II malfunction in ischemic stroke: therapeutical effects of kaempferol. Biochim. Biophys. Acta 1863: 2307-2318.
4. Indira, D., et al. 2018. Strategies for imaging mitophagy in high-resolution and high-throughput. Eur. J. Cell Biol. 97: 1-14.
5. Ruegsegger, G.N., et al. 2019. Insulin deficiency and intranasal Insulin alter brain mitochondrial function: a potential factor for dementia in diabetes. FASEB J. 33: 4458-4472.
6. Marshall, K.D., et al. 2019. The novel cyclophilin-D-interacting protein FASTKD1 protects cells against oxidative stress-induced cell death. Am. J. Physiol., Cell Physiol. 317: C584-C599.
7. Cheng, Y., et al. 2020. Neuroprotective actions of leptin facilitated through balancing mitochondrial morphology and improving mitochondrial function. J. Neurochem. 155: 191-206.
8. Castro-Sepulveda, M., et al. 2020. Relative lipid oxidation associates directly with mitochondrial fusion phenotype- and mitochondria-sarcoplasmic reticulum interactions in human skeletal muscle. Am. J. Physiol. Endocrinol. Metab. 318: E848-E855.

CONJUGATES

See **DRP1 (C-5): sc-271583** for DRP1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.