SANTA CRUZ BIOTECHNOLOGY, INC.

p-NOS3 (15E2): sc-81510

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Nitric oxide (NO), produced by the endothelial NO synthase (NOS3), is a fundamental determinant of cardiovascular homeostasis that maintains system blood pressure, vascular remodeling and angiogenesis. NOS3 is stimulated, in a phosphatidylinositol 3-kinase (PI 3-kinase)-dependent fashion, by treatment of endothelial cells with Insulin-like growth factor-1 and vascular endothelial growth factor (VEGF). The serine/threonine protein kinase Akt/PKB is an important downstream target of PI 3-kinase, regulating VEGF-stimulated endothelial cell survival. NOS3 activation via phosphorylation of Serine 1177 by Akt/PKB is necessary and sufficient for VEGF-mediated endothelial cell migration. Therefore, Akt/PKB can directly phosphorylate NOS3 on Serine 1177, activating the enzyme and leading to NO production.

REFERENCES

1. Rudic, R.D., et al. 1998. Direct evidence for the importance of endothelium-derived nitric oxide in vascular remodeling. J. Clin. Invest. 101: 731-736.
2. Murohara, T., et al. 1998. Nitric oxide synthase modulates angiogenesis in response to tissue ischemia. J. Clin. Invest. 101: 2567-2578.
3. Fulton, D., et al. 1999. Regulation of endothelium-derived nitric oxide production by the protein kinase Akt. Nature 399: 597-601.
4. Dimmeler, S., et al. 1999. Activation of nitric oxide synthase in endothelial cells by Akt-dependent phosphorylation. Nature 399: 601-605.

CHROMOSOMAL LOCATION

Genetic locus: NOS3 (human) mapping to 7q36.1; Nos3 (mouse) mapping to 5 A3.

SOURCE

p-NOS3 (15E2) is a mouse monoclonal antibody raised against a synthetic phosphopeptide corresponding to amino acid residues surrounding Ser 1177 of NOS3 of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

APPLICATIONS

p-NOS3 (15E2) is recommended for detection of Ser 1177 phosphorylated NOS3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for NOS3 siRNA (h): sc-36093, NOS3 siRNA (m): sc-36094, NOS3 shRNA Plasmid (h): sc-36093-SH, NOS3 shRNA Plasmid (m): sc-36094-SH, NOS3 shRNA (h) Lentiviral Particles: sc-36093-V and NOS3 shRNA (m) Lentiviral Particles: sc-36094-V.

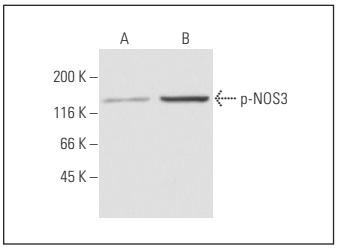
Molecular Weight of p-NOS3: 140 kDa.

Positive Controls: pervanadate-treated bend 3 whole cell lysate or HUV-EC-C whole cell lysate: sc-364180.

STORAGE

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

DATA



p-NOS3 (15E2): sc-81510. Western blot analysis of NOS3 phosphorylation in untreated (**A**) and pervanadate-treated (**B**) bend 3 whole cell lysates.

SELECT PRODUCT CITATIONS

1. Torre-Villalvazo, I., et al. 2008. Soy protein ameliorates metabolic abnormalities in liver and adipose tissue of rats fed a high fat diet. J. Nutr. 138: 462-468.
2. Qin, B., et al. 2018. MicroRNA-142-3p induces atherosclerosis-associated endothelial cell apoptosis by directly targeting Rictor. Cell. Physiol. Biochem. 47: 1589-1603.
3. Zhang, Z., et al. 2019. TLR4 counteracts BVRA signaling in human leukocytes via differential regulation of AMPK, mTORC1 and mTORC2. Sci. Rep. 9: 7020.
4. Qin, L., et al. 2021. Chlorogenic acid alleviates hyperglycemia-induced cardiac fibrosis through activation of the NO/cGMP/PKG pathway in cardiac fibroblasts. Mol. Nutr. Food Res. 65: e2000810.
5. Meyer, N., et al. 2021. Pravastatin promotes endothelial colony-forming cell function, angiogenic signaling and protein expression *in vitro*. J. Clin. Med. 10: 183.
6. Yao, W., et al. 2021. Icariin ameliorates endothelial dysfunction in type 1 diabetic rats by suppressing ER stress via the PPARα/Sirt1/AMPKα pathway. J. Cell. Physiol. 236: 1889-1902.
7. Yu, H., et al. 2022. SIRT3-AMPK signaling pathway as a protective target in endothelial dysfunction of early sepsis. Int. Immunopharmacol. 106: 108600.
8. Li, K., et al. 2022. Cysteine-rich whey protein isolate (CR-WPI) ameliorates erectile dysfunction by diminishing oxidative stress via DDAH/ADMA/NOS pathway. Oxid. Med. Cell. Longev. 2022: 8151917.
9. Pape, J., et al. 2022. Cardioprotection by hypothyroidism is not mediated by favorable hemodynamics-role of canonical thyroid hormone receptor α signaling. Int. J. Mol. Sci. 23: 13340.

RESEARCH USE

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