SANTA CRUZ BIOTECHNOLOGY, INC.

Neuroketals (C-17): sc-130089

BACKGROUND

Enzymes are utilized to maintain a reducing environment within cells that is essential for normal cellular function and is crucial for the proper detoxification of reactive intermediates. When the cellular reduction potential rises, the intercellular reducing capacity decreases, resulting in a rise in oxygen-reactive intermediates, such as free radicals, and putting the cell in a state of oxidative stress. Oxidative stress can cause many toxic effects, including protein and DNA damage, and is associated with a variety of diseases, such as atherosclerosis, Parkinson's disease and Alzheimer's disease. In neuronal tissue, oxidative stress leads to the free radical-mediated oxidation of docosohexaenoic acid (DHA), a reaction that yields a species of highly reactive γ-ketoaldehydes known as Neuroketals. Specifically, Neuroketals rapidly interact with lysine residues, thereby causing protein cross-linking reactions that are associated with several neurodegenerative diseases.

REFERENCES

1. Brame, C.J., Salomon, R.G., Morrow, J.D. and Roberts, L.J. 1999. Identification of extremely reactive γ-ketoaldehydes (isolevuglandins) as products of the isoprostane pathway and characterization of their lysyl protein adducts. J. Biol. Chem. 274: 13139-13146.
2. Bernoud-Hubac, N., Davies, S.S., Boutaud, O., Montine, T.J. and Roberts, L.J. 2001. Formation of highly reactive γ-ketoaldehydes (Neuroketals) as products of the neuroprostane pathway. J. Biol. Chem. 276: 30964-30970.
3. Bernoud-Hubac, N. and Roberts, L.J. 2002. Identification of oxidized derivatives of Neuroketals. Biochemistry 41: 11466-11471.
4. Roberts, L.J. and Morrow, J.D. 2002. Products of the isoprostane pathway: unique bioactive compounds and markers of lipid peroxidation. Cell. Mol. Life Sci. 59: 808-820.
5. Davies, S.S., Amarnath, V., Montine, K.S., Bernoud-Hubac, N., Boutaud, O., Montine, T.J. and Roberts, L.J. 2002. Effects of reactive γ-ketoaldehydes formed by the isoprostane pathway (isoketals) and cyclooxygenase pathway (levuglandins) on proteasome function. FASEB J. 16: 715-717.
6. Roberts, L.J. and Fessel, J.P. 2004. The biochemistry of the isoprostane, neuroprostane, and isofuran pathways of lipid peroxidation. Chem. Phys. Lipids 128: 173-186.
7. Montuschi, P., Barnes, P.J. and Roberts, L.J. 2004. Isoprostanes: markers and mediators of oxidative stress. FASEB J. 18: 1791-1800.
8. Montuschi, P., Barnes, P. and Roberts, L.J. 2007. Insights into oxidative stress: the isoprostanes. Curr. Med. Chem. 14: 703-717.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

PROTOCOLS

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

SOURCE

Neuroketals (C-17) is a goat polyclonal antibody raised against a neuroketal conjugate.

PRODUCT

Each vial contains 100 µl serum.

APPLICATIONS

Neuroketals (C-17) is recommended for detection of Neuroketals modified proteins by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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