SANTA CRUZ BIOTECHNOLOGY, INC.

5-Hydroxymethyluridine (J-19): sc-130084

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. Inflammatory-induced oxidative stress can lead to the formation of 5-Hydroxymethyluridine, a modified nucleotide that is created during DNA oxidation via the oxidative modification of thymidine. The presence of 5-Hydroxymethyluridine may be associated with altered gene expression and chromosome instability that is generally linked to cancers and autoimmune diseases.

REFERENCES

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3. Kaufman, E.R. 1986. Biochemical analysis of toxic effects of 5-hydroxymethyl-2'-deoxyuridine in mammalian cells. Somat. Cell Mol. Genet. 12: 501-512.
4. Coyle, J.T. and Puttfarcken, P. 1993. Oxidative stress, glutamate, and neurodegenerative disorders. Science 262: 689-695.
5. Hu, J.J., Chi, C.X., Frenkel, K., Smith, B.N., Henfelt, J.J., Berwick, M., Mahabir, S. and D'Agostino, R.B. 1999. α-tocopherol dietary supplement decreases titers of antibody against 5-hydroxymethyl-2'-deoxyuridine (HMdU). Cancer Epidemiol. Biomarkers Prev. 8: 693-698.
6. Mi, L.J., Chaung, W., Horowitz, R., Teebor, G.W. and Boorstein, R.J. 2001. Excessive base excision repair of 5-hydroxymethyluracil from DNA induces apoptosis in Chinese hamster V79 cells containing mutant p53. Carcinogenesis 22: 179-186.

SOURCE

5-Hydroxymethyluridine (J-19) is a goat polyclonal antibody raised against a 5-hydroxymethyluridine conjugate.

PRODUCT

Each vial contains 100 µl serum.

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.

APPLICATIONS

5-Hydroxymethyluridine (J-19) is recommended for detection of 5-Hydroxymethyuridine modified proteins by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

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.

RESEARCH USE

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

PROTOCOLS

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