SANTA CRUZ BIOTECHNOLOGY, INC.

Halotyrosine (BTK-94C): sc-293152

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Halogenation is a chemical reaction that substitutes a molecule's hydrogen atom with a halogen, a nonmetal element. Fluorination, chlorination, bromination and iodination are the four types of halogenation. Halogenated organic compounds are found as natural products in many living organisms. Halotyrosine residues are the result of tyrosine modification, usually bromine or chlorine.This generally occurs as a result of immune cell actions or oxidative stress. For example, activated eosinophils release eosinophil peroxidase, which in turn produces hypobromite (HOBr). Hypobromite can then react with proteins to create bromotyrosine residues. Studies on total bromotyrosine levels have shown that these protein modifications are increased in asthmatics, but are decreased in response to anti-inflammatory drugs.

REFERENCES

1. Welinder, B.S. 1972. Halogenated tyrosines from the cuticle of *Limulus polyphemus (L.).* Biochim. Biophys. Acta 279: 491-497.
2. Ring, M., et al. 1993. The properties of β-galactosidases *(Escherichia coli)* with halogenated tyrosines. Biochem. Cell Biol. 71: 127-132.
3. Kijjoa, A., et al. 2001. 11,17-dideoxyagelorin A and B, new bromotyrosine derivatives and analogs from the marine sponge *Suberea* aff. *praetensa.* Z. Naturforsch., C, J. Biosci. 56: 1116-1119.
4. Kijjoa, A., et al. 2002. Further halotyrosine derivatives from the marine sponge *Suberea* aff. *praetensa.* Z. Naturforsch., C, J. Biosci. 57: 732-738.
5. Ishitsuka, Y., et al. 2007. Detection of modified tyrosines as an inflammation marker in a photo-aged skin model. Photochem. Photobiol. 83: 698-705.
6. Thomson, E., et al. 2010. Identifying peroxidases and their oxidants in the early pathology of cystic fibrosis. Free Radic. Biol. Med. 49: 1354-1360.
7. Cao, W., et al. 2011. Halogenated aromatic amino acid 3,5-dibromo-D: -tyrosine produces beneficial effects in experimental stroke and seizures. Amino Acids 40: 1151-1158.
8. Nishikawa, T., et al. 2011. Benzene metabolite 1,2,4-benzenetriol induces halogenated DNA and tyrosines representing halogenative stress in the HL-60 human myeloid cell line. Environ. Health Perspect. 120: 62-67.

SOURCE

Halotyrosine (BTK-94C) is a mouse monoclonal antibody raised against a bromotyrosine structural mimic conjugated to KLH.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

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.

APPLICATIONS

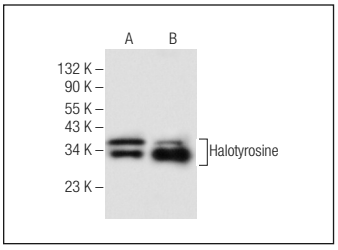
Halotyrosine (BTK-94C) is recommended for detection of bromotyrosine modified proteins by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Positive Controls: SK-MEL-28 cell lysate: sc-2236 or T84 whole cell lysate: sc-364797.

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 L-Agarose: sc-2336 (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



Halotyrosine (BTK-94C): sc-293152. Western blot analysis of Halotyrosine expression in T84 (**A**) and SK-MEL-28 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Jang, H.S., et al. 2020. Efficient site-specific prokaryotic and eukaryotic incorporation of Halotyrosine amino acids into proteins. ACS Chem. Biol. 15: 562-574.
2. Song, G., et al. 2020. Structure and composition of the tunic in the sea pineapple *Halocynthia roretzi:* a complex cellulosic composite biomaterial. Acta Biomater. 111: 290-301.

PROTOCOLS

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