SANTA CRUZ BIOTECHNOLOGY, INC.

NAT-1/2 (D-9): sc-398540

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Arylamine N-acetyltransferases (NAT-1 and NAT-2) catalyze N- or O-acetylation of heterocyclic and arylamine substrates in the detoxification of a wide array of drugs. Certain alleles causing high levels of N-acetyltransferase activity have been associated with colon and urinary bladder cancers, as NAT's also bioactivate several known carcinogens. Both NAT-1 and NAT-2 are cytoplasmic proteins and play an active role in the detoxification of many arylamine and hydrazine drugs. N-acetylation polymorphism is determined by the level of NAT activity in liver tissues, and has been linked to the action and toxicity of drugs that contain amines. Human NAT-1 is the functional homolog of rodent NAT-2, while human NAT-2 is the functional homolog of rodent NAT-1.

REFERENCES

1. Lanckriet, C., et al. 1992. Morbidity and mortality in the pediatric service of Banqui (Central African Republic) during the year 1990. Implications for public health. Ann. Pediatr. 39:125-130.
2. Kiss, I., et al. 2004. Polymorphisms of glutathione-S-transferase and arylamine N-acetyltransferase enzymes and susceptibility to colorectal cancer. Anticancer Res. 24: 3965-3970.
3. Li, Y.C., et al. 2005. N-acetyltransferase is involved in baicalein-induced N-acetylation of 2-aminofluorene and DNA-2-aminofluorene adduct formation in human leukemia HL-60 cells. In Vivo 19: 399-405.
4. Deguchi, M., et al. 2005. Lack of association between endometriosis and N-acetyl transferase 1 (NAT-1) and 2 (NAT-2) polymorphisms in a Japanese population. J. Soc. Gynecol. Investig. 12: 208-213.
5. Zhang, X.F., et al. 2005. Are polymorphisms of N-acetyltransferase genes susceptible to primary liver cancer in Luoyang, China? World J. Gastroenterol. 11: 1457-1462.
6. Broberg, K., et al. 2005. Constitutional short telomeres are strong genetic susceptibility markers for bladder cancer. Carcinogenesis 26: 1263-1271.

CHROMOSOMAL LOCATION

Genetic locus: NAT1/NAT2 (human) mapping to 8p22; Nat1/Nat2 (mouse) mapping to 8 B3.3.

SOURCE

NAT-1/2 (D-9) is a mouse monoclonal antibody raised against amino acids 146-185 mapping within an internal region of NAT-1 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_1 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

NAT-1/2 (D-9) is recommended for detection of NAT-1 and NAT-2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

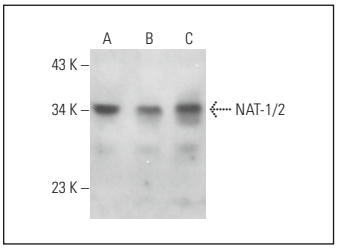
Molecular Weight of NAT-1/2: 34 kDa.

Positive Controls: WEHI-231 whole cell lysate: sc-2213, RAW 264.7 whole cell lysate: sc-2211 or A-431 whole cell lysate: sc-2201.

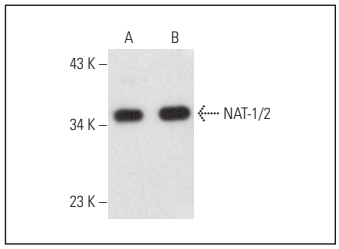
RECOMMENDED SUPPORT REAGENTS

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 A/G PLUS-Agarose: sc-2003 (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



NAT-1/2 (D-9): sc-398540. Western blot analysis of NAT-1/2 expression in HeLa (**A**), Hep G2 (**B**) and A-431 (**C**) whole cell lysates.



NAT-1/2 (D-9): sc-398540. Western blot analysis of NAT-1/2 expression in RAW 264.7 (**A**) and WEHI-231 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Zou, C., et al. 2020. Reduction of mNAT1/hNAT2 contributes to cerebral endothelial necroptosis and Aβ accumulation in Alzheimer's disease. Cell Rep. 33: 108447.
2. Jurado-Flores, M., et al. 2022. Pathophysiology and clinical features of neuropsychiatric manifestations of thyroid disease. J. Endocr. Soc. 6: bvab194.

PROTOCOLS

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