SANTA CRUZ BIOTECHNOLOGY, INC.

Arnt 1 (G-3): sc-17812

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

AhR, Arnt 1, Arnt 2 and BMAL1 are members of a family of transcription factors that contain a basic helix-loop-helix motif and a common "PAS" motif. The aromatic (aryl) hydrocarbon receptor, AhR, is a ligand dependent transcription factor that interacts with specific DNA sequences termed xenobiotic responsive elements (XREs) to activate several genes including CYP1A1, glutathione S-transferase Ya subunit and DT-diaphorase. The Ah Receptor nuclear translocator proteins (Arnt 1 or Arnt 2) are required for ligand-dependent nuclear translocation of the Ah Receptor and are also necessary for Ah Receptor binding to the XRE element. Arnt 1 (aryl hydrocarbon receptor nuclear translocator), also known as HIF1B, TANGO, bHLHe2, HIF1BETA, HIF-1β or ARNT, is a 789 amino acid nuclear protein that contains a basic helix-loop-helix (bHLH) domain, a PAC (PAS-associated C-terminal) domain and two PAS (PER-ARNT-SIM) domains.

REFERENCES

1. Reyes, H., et al. 1992. Identification of the Ah receptor nuclear translocator protein (Arnt) as a component of the DNA binding form of the Ah receptor. Science 256: 1193-1195.
2. Sogawa, K., et al. 1995. Transcriptional activation domains of the Ah receptor and Ah receptor nuclear translocator. J. Cancer Res. Clin. Oncol. 121: 612-620.

CHROMOSOMAL LOCATION

Genetic locus: ARNT (human) mapping to 1q21.3.

SOURCE

Arnt 1 (G-3) is a mouse monoclonal antibody raised against amino acids 520-692 mapping near the C-terminus of Arnt 1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-17812 X, 200 µg/0.1 ml.

APPLICATIONS

Arnt 1 (G-3) is recommended for detection of Arnt 1 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:500), 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).

Suitable for use as control antibody for Arnt 1 siRNA (h): sc-29733, Arnt 1 shRNA Plasmid (h): sc-29733-SH and Arnt 1 shRNA (h) Lentiviral Particles: sc-29733-V.

Arnt 1 (G-3) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

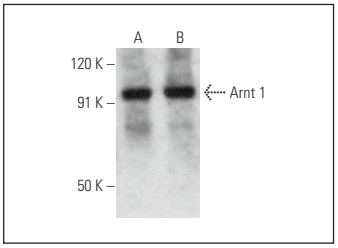
Molecular Weight of Arnt 1: 95 kDa.

Positive Controls: HeLa + $CoCl_2$ cell lysate: sc-24679, MDA-MB-231 cell lysate: sc-2232 or Hep G2 cell lysate: sc-2227.

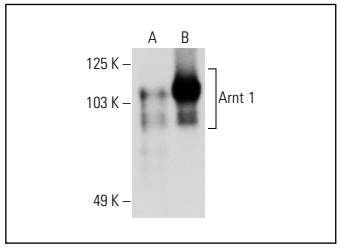
STORAGE

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

DATA



Arnt 1 (G-3): sc-17812. Western blot analysis of Arnt 1 expression in Hep G2 (**A**) and MDA-MB-231 (**B**) whole cell lysates.



Arnt 1 (G-3): sc-17812. Western blot analysis of Arnt 1 expression in untreated (**A**) and $COCl_2$ treated (**B**) HeLa whole cell lysates.

SELECT PRODUCT CITATIONS

1. Sciullo, E.M., et al. 2008. Initial and extended inflammatory messages of the nongenomic signaling pathway of the TCDD-activated Ah Receptor in U937 macrophages. Arch. Biochem. Biophys. 480: 143-155.
2. Sciullo, E.M., et al. 2009. Characterization of the pattern of the nongenomic signaling pathway through which TCDD-induces early inflammatory responses in U937 human macrophages. Chemosphere 74: 1531-1537.
3. Okumura, F., et al. 2016. Parallel regulation of von Hippel-Lindau disease by pVHL-mediated degradation of B-Myb and hypoxia-inducible factor α. Mol. Cell. Biol. 36: 1803-1817.
4. Nakano, N., et al. 2020. Dissociation of the AhR-ARNT complex by TGF-β-Smad signaling represses CYP1A1 gene expression and inhibits benze[a]pyrene-mediated cytotoxicity. J. Biol. Chem. 295: 9033-9051.
5. Vyhlídalová, B., et al. 2020. Antimigraine drug avitriptan is a ligand and agonist of human aryl hydrocarbon receptor that induces CYP1A1 in hepatic and intestinal cells. Int. J. Mol. Sci. 21: 2799.
6. Grycová, A., et al. 2022. Targeting the aryl hydrocarbon receptor with microbial metabolite mimics alleviates experimental colitis in mice. J. Med. Chem. 65: 6859-6868.
7. Modoux, M., et al. 2022. Butyrate acts through HDAC inhibition to enhance aryl hydrocarbon receptor activation by gut microbiota-derived ligands. Gut Microbes 14: 2105637.
8. Ondrová, K., et al. 2023. Monoterpenoid aryl hydrocarbon receptor allosteric antagonists protect against ultraviolet skin damage in female mice. Nat. Commun. 14: 2728.
9. Vrzal, R., et al. 2023. Jasmone is a ligand-selective allosteric antagonist of aryl hydrocarbon receptor (AhR). Int. J. Mol. Sci. 24: 15655.

RESEARCH USE

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