



AANAT (FL-207): sc-68346

BACKGROUND

AANAT (arylalkylamine N-acetyltransferase), also called serotonin N-acetyltransferase (SNAT) or serotonin acetylase, is a member of the acetyltransferase superfamily. It is almost exclusively expressed in the pineal gland and the retina. AANAT activity is high at night and low during the day due to the 10- to 100-fold increase in the amount of active AANAT at night. Retinal exposure to light causes cAMP levels to decrease in photoreceptor cells and, as a result, AANAT is targeted for degradation by proteasomal proteolysis. AANAT plays an important role as the rate limiting enzyme in melatonin synthesis. It is responsible for catalyzing the N-acetylation of serotonin to N-acetylserotonin, which is then converted to melatonin by hydroxyindole-O-methyltransferase. Melatonin is an important hormone that is involved in many physiological processes including immune function, seasonal reproduction, retinal physiology and circadian entrainment.

REFERENCES

- Shi, Q., Ando, H., Coon, S.L., Sato, S., Ban, M. and Urano, A. 2004. Embryonic and post-embryonic expression of arylalkylamine N-acetyltransferase and melatonin receptor genes in the eye and brain of chum salmon (*Oncorhynchus keta*). *Gen. Comp. Endocrinol.* 136: 311-321.
- Klein, D.C. 2006. Evolution of the vertebrate pineal gland: the AANAT hypothesis. *Chronobiol. Int.* 23: 5-20.
- Simonneaux, V., Sinitskaya, N., Salingre, A., Garidou, M.L. and Pevet, P. 2006. Rat and Syrian hamster: two models for the regulation of AANAT gene expression. *Chronobiol. Int.* 23: 351-359.
- Ho, A.K., Terriff, D.L., Price, D.M. and Chik, C.L. 2006. Opposite effects of proteasome inhibitors in the adrenergic induction of arylalkylamine N-acetyltransferase in rat pinealocytes. *Chronobiol. Int.* 23: 361-367.
- Tosini, G., Chaurasia, S.S. and Michael Iuvone, P. 2006. Regulation of arylalkylamine N-acetyltransferase (AANAT) in the retina. *Chronobiol. Int.* 23: 381-391.
- Coon, S.L. and Klein, D.C. 2006. Evolution of arylalkylamine N-acetyltransferase: emergence and divergence. *Mol. Cell. Endocrinol.* 252: 2-10.
- Koch, M., Dehghani, F., Habazettl, I., Schomerus, C. and Korf, H.W. 2006. Cannabinoids attenuate norepinephrine-induced melatonin biosynthesis in the rat pineal gland by reducing arylalkylamine N-acetyltransferase activity without involvement of cannabinoid receptors. *J. Neurochem.* 98: 267-278.
- Kim, T.D., Woo, K.C., Cho, S., Ha, D.C., Jang, S.K. and Kim, K.T. 2007. Rhythmic control of AANAT translation by hnRNP Q in circadian melatonin production. *Genes Dev.* 21: 797-810.
- Humphries, A., Wells, T., Baler, R., Klein, D.C. and Carter, D.A. 2007. Rodent AANAT: intronic E-box sequences control tissue specificity but not rhythmic expression in the pineal gland. *Mol. Cell. Endocrinol.* 270: 43-49.

CHROMOSOMAL LOCATION

Genetic locus: AANAT (human) mapping to 17q25; Aanat (mouse) mapping to 11 E2.

SOURCE

AANAT (FL-207) is a rabbit polyclonal antibody raised against amino acids 1-207 representing full length AANAT of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

AANAT (FL-207) is recommended for detection of AANAT of mouse, rat and human origin 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)], 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 AANAT siRNA (h): sc-61928 and AANAT siRNA (m): sc-61929.

Molecular Weight of AANAT: 23 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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.

PROTOCOLS

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