SANTA CRUZ BIOTECHNOLOGY, INC.

T1R3 (N-20): sc-22458

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The sense of taste provides animals with valuable information about the quality and nutritional value of food. There are four widely accepted categories of taste perception: sweet, bitter, salty and sour. A controversial fifth taste, known as umami or monosodium glutamate (MSG), has also been described. A family of G protein-coupled receptors are involved in taste perception and include T1R, which is involved in sweet and umami taste perception, and T2R, which is involved in bitter taste perception. The T1R family consists of three members: T1R1, T1R2 and T1R3. These proteins form heterodimers, which alter the selectivity of the subunits. The T1R2 and T1R3 heterodimer functions as a receptor for sweet taste, and recognizes several sweet-tasting molecules such as sucrose, saccharin, dulcin and acesulfame-K. The T1R1 and T1R3 heterodimer recognizes L-amino acids to perceive umami taste. Sweet taste transduction is carried out by two pathways. First, sucrose and other sugars activate Gas via the T1Rs, which activates adenylyl cyclase to generate cAMP. Artificial sweeteners bind to either $G_{\beta\gamma}$- or $G_{\alpha q}$-coupled T1Rs to activate PLC β2 and generate IP3 and DAG. Both pathways ultimately lead to neurotransmitter release. The mouse T1R3 gene maps to chromosome 4 near the Sac locus, a primary determinant of sweet preference in mice. It is expressed in a subset of taste cells in circumvallate, foliate and fungiform taste papillae.

CHROMOSOMAL LOCATION

Genetic locus: TAS1R3 (human) mapping to 1p36.33; Tas1r3 (mouse) mapping to 4 E2.

SOURCE

T1R3 (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of T1R3 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.

Blocking peptide available for competition studies, sc-22458 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

T1R3 (N-20) is recommended for detection of T1R3 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). T1R3 (N-20) is also recommended for detection of T1R3 in additional species, including equine, canine and porcine.

Suitable for use as control antibody for T1R3 siRNA (h): sc-45324, T1R3 siRNA (m): sc-45325, T1R3 shRNA Plasmid (h): sc-45324-SH, T1R3 shRNA Plasmid (m): sc-45325-SH, T1R3 shRNA (h) Lentiviral Particles: sc-45324-V, T1R3 shRNA (m) Lentiviral Particles: sc-45325-V.

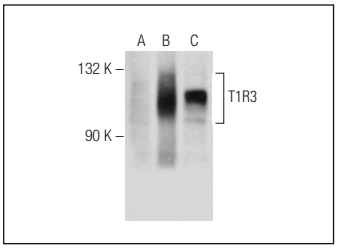
Molecular Weight of T1R3: 93 kDa.

Positive Controls: T1R3 (h): 293T Lysate: sc-174385, K-562 whole cell lysate: sc-2203 or Jurkat whole cell lysate: sc-2204.

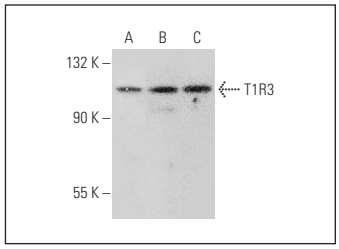
STORAGE

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

DATA



T1R3 (N-20): sc-22458. Western blot analysis of T1R3 expression in non-transfected: sc-117752 (**A**) and human T1R3 transfected: sc-174385 (**B**) 293T whole cell lysates and mouse kidney tissue extract (**C**).



T1R3 (N-20): sc-22458. Western blot analysis of T1R3 expression in HL-60 (**A**), K-562 (**B**) and Jurkat (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Le Gall, M., et al. 2007. Sugar sensing by enterocytes combines polarity, membrane bound detectors and sugar metabolism. J. Cell. Physiol. 213: 834-843.
2. Shigemura, N., et al. 2009. Genetic and molecular basis of individual differences in human umami taste perception. PLoS ONE 4: e6717.
3. Moran, A.W., et al. 2010. Expression of Na^+/glucose co-transporter 1 (SGLT1) is enhanced by supplementation of the diet of weaning piglets with artificial sweeteners. Br. J. Nutr. 104: 637-646.
4. Meyer, D., et al. 2012. Expression of Tas1 taste receptors in mammalian spermatozoa: functional role of Tas1r1 in regulating basal Ca^{2+} and cAMP concentrations in spermatozoa. PLoS ONE 7: e32354.
5. Daly, K., et al. 2012. Expression of sweet receptor components in equine small intestine: relevance to intestinal glucose transport. Am. J. Physiol. Regul. Integr. Comp. Physiol. 303: R199-R208.
6. Li, F., et al. 2012. Depletion of bitter taste transduction leads to massive spermatid loss in transgenic mice. Mol. Hum. Reprod. 18: 289-297.
7. Daly, K., et al. 2013. Sensing of amino acids by the gut-expressed taste receptor T1R1-T1R3 stimulates CCK secretion. Am. J. Physiol. Gastrointest. Liver Physiol. 304: G271-G282.

RESEARCH USE

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