SANTA CRUZ BIOTECHNOLOGY, INC.

T1R2 (T-20): sc-22456

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 alters 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 $G_{\alpha s}$ 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, and it is expressed in a subset of taste cells in circumvallate, foliate and fungiform taste papillae.

REFERENCES

1. Nelson, G., et al. 2001. Mammalian sweet taste receptors. Cell 106: 381-390.
2. Montmayeur, J.P., et al. 2001. A candidate taste receptor gene near a sweet taste locus. Nat. Neurosci. 4: 492-498.
3. Sainz, E., et al. 2001. Identification of a novel member of the T1R family of putative taste receptors. J. Neurochem. 77: 896-903.
4. Margolskee, R.F. 2002. Molecular mechanisms of bitter and sweet taste transduction. J. Biol. Chem. 277: 1-4.

CHROMOSOMAL LOCATION

Genetic locus: TAS1R2 (human) mapping to 1p36.13; Tas1r2 (mouse) mapping to 4 D3.

SOURCE

T1R2 (T-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of T1R2 of rat 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-22456 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

T1R2 (T-20) is recommended for detection of T1R2 of mouse, rat and, to a lesser extent, human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 T1R2 siRNA (h): sc-40196, T1R2 siRNA (m): sc-40197, T1R2 siRNA (r): sc-72245, T1R2 shRNA Plasmid (h): sc-40196-SH, T1R2 shRNA Plasmid (m): sc-40197-SH, T1R2 shRNA Plasmid (r): sc-72245-SH, T1R2 shRNA (h) Lentiviral Particles: sc-40196-V, T1R2 shRNA (m) Lentiviral Particles: sc-40197-V and T1R2 shRNA (r) Lentiviral Particles: sc-72245-V.

Molecular Weight of T1R2: 95.8 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Bezencon, C., et al. 2007. Taste-signaling proteins are coexpressed in solitary intestinal epithelial cells. Chem. Senses 32: 41-49.
2. 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.
3. Batchelor, D.J., et al. 2011. Sodium/glucose cotransporter-1, sweet receptor, and disaccharidase expression in the intestine of the domestic dog and cat: two species of different dietary habit. Am. J. Physiol. Regul. Integr. Comp. Physiol. 300: R67-R75.
4. 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.
5. 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.

PROTOCOLS

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