

# T1R3 (H-145): sc-50353

## 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- or  $G_{\alpha q}$ -coupled T1Rs to activate PLC  $\beta 2$  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.

## REFERENCES

- Nelson, G., et al. 2001. Mammalian sweet taste receptors. *Cell* 106: 381-390.
- Montmayeur, J.P., et al. 2001. A candidate taste receptor gene near a sweet taste locus. *Nat. Neurosci.* 4: 492-498.
- Sainz, E., et al. 2001. Identification of a novel member of the T1R family of putative taste receptors. *J. Neurochem.* 77: 896-903.
- Margolskee, R.F. 2002. Molecular mechanisms of bitter and sweet taste transduction. *J. Biol. Chem.* 277: 1-4.
- Li, X., et al. 2002. Human receptors for sweet and umami taste. *Proc. Natl. Acad. Sci. USA* 99: 4692-4696.
- Nelson, G., et al. 2002. An amino acid taste receptor. *Nature* 416: 199-202.

## CHROMOSOMAL LOCATION

Genetic locus: TAS1R3 (human) mapping to 1p36.33.

## SOURCE

T1R3 (H-145) is a rabbit polyclonal antibody raised against amino acids 426-570 mapping within an extracellular domain of T1R3 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG 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.

## APPLICATIONS

T1R3 (H-145) is recommended for detection of T1R3 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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 T1R3 siRNA (h): sc-45324, T1R3 shRNA Plasmid (h): sc-45324-SH and T1R3 shRNA (h) Lentiviral Particles: sc-45324-V.

Molecular Weight of T1R3: 93.4 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.

## SELECT PRODUCT CITATIONS

- Moran, A.W., et al. 2010. Expression of Na<sup>+</sup>/glucose co-transporter 1 (SGLT1) is enhanced by supplementation of the diet of weaning piglets with artificial sweeteners. *Br. J. Nutr.* 104: 637-646.
- 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.
- 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.
- 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](http://www.scbt.com) or our catalog for detailed protocols and support products.