

Trace amine-associated

Overview: Trace amine-associated receptors (nomenclature as agreed by NC-IUPHAR for trace amine receptors, see Maguire *et al.*, 2009) were initially discovered as a result of a search for novel 5-HT receptors (Borowsky *et al.*, 2001), where 15 mammalian orthologues were identified and divided into two families.

Nomenclature	TA ₁	TA ₂
Other names	TAA1, TaR-1, BO111	TAA2, GPR58
Ensembl ID	ENSG00000146399	ENSG00000146378
Principal transduction	G _s	G _s
Potency order	Tyramine ≥ PEA > octopamine = dopamine (Borowsky <i>et al.</i> , 2001)	PEA > tryptamine (Borowsky <i>et al.</i> , 2001)
Probes	[³ H]-Tyramine (20 nM, Borowsky <i>et al.</i> , 2001)	–

TAAR3 (BO107, ENSMUSG00000069708, ENSRNOG00000025982), in some individuals, and TAAR4 (ENSMUSG00000069707, ENSRNOG00000029877) are pseudogenes in man, although functional in rodents. The signalling characteristics and pharmacology of TAA₅ (PNR, Putative Neurotransmitter Receptor, ENSG00000135569), TAA₆ (Trace amine receptor 4, TaR-4, ENSG00000146383), TAA₈ (Trace amine receptor 5, GPR102, ENSG00000146385) and TAA₉ (trace amine-associated receptor 9, ENSG00000188604) are lacking. The thyronamines, endogenous derivatives of thyroid hormone, have been shown to have affinity for rodent cloned trace amine receptors, including TA₁ (Scanlan *et al.*, 2004).

Abbreviation: PEA, 2-phenylethylamine

Further Reading

Burchett SA, Hicks TP (2006). The mysterious trace amines: protean neuromodulators of synaptic transmission in mammalian brain. *Prog Neurobiol* **79**: 223–246.

Grandy DK (2007). Trace amine-associated receptor 1-Family archetype or iconoclast? *Pharmacol Ther* **116**: 355–390.

Maguire JJ, Parker WA, Foord SM, Bonner TI, Neubig RR, Davenport AP (2009). International Union of Pharmacology. LXXII. Recommendations for trace amine receptor nomenclature. *Pharmacol Rev* **61**: 1–8.

Sotnikova TD, Caron MG, Gainetdinov RR (2009). Trace amine-associated receptors as emerging therapeutic targets. *Mol Pharmacol* **76**: 229–235.

Zucchi R, Chiellini G, Scanlan TS, Grandy DK (2006). Trace amine-associated receptors and their ligands. *Br J Pharmacol* **149**: 967–978.

References

Borowsky B *et al.* (2001). *Proc Natl Acad Sci USA* **98**: 8966–8971.

Scanlan TS *et al.* (2004). *Nat Med* **10**: 638–642.