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**Product Data Sheet**

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Product Name: TRAM 39  
Cat. No.: GC15323

**Chemical Properties**

Cas. No. 197525-99-8

Chemical Name 2-(2-chlorophenyl)-2,2-diphenylacetonitrile

SMILES C1C(C=CC=C1)=C1C(C2=CC=CC=C2)(C#N)C3=CC=CC=C3

Formula  $C_{20}H_{14}ClN$  M.Wt 303.78

Solubility <15.44mg/ml in DMSO Storage Store at RT

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure

**Background**

TRAM-39, 2-(2-chlorophenyl)-2, 2-diphenyl acetonitrile, is a potent, synthetic, selective inhibitor of intermediate-conductance  $Ca^{2+}$ -activated  $K^{+}$  channels. TRAM-39 selectively block  $K-Ca_3$  but do not inhibit other  $Ca^{2+}$ -activated  $K^{+}$  channels.[1,3]

Intermediate conductance  $Ca^{2+}$ -activated  $K$  channels are the product of the  $IKCa1$  genes and are important in regulating the membrane potential of colonic epithelial cells, and lymphocytes. The  $IKCa1$  gene is also important in volume regulation of red blood cells.  $IKCa1$  modulates the paneth cell alpha-defensin secretion and involve in the mucosal defense of the intestinal epithelium against ingested bacterial pathogens.[1,2]

TRAM-39 inhibits the  $Kca_3$ , so as to Inhibit paneth cell secretion stimulated by bacteria or bacterial lipopolysaccharide. Endothelium-derived hyperpolarizing factor (EDHF ) responses are brought about by the activation of endothelial  $SKCa$  and  $IKCa$ . [1,3]

A combination of TRAM-39 and apamin abolished endothelium-derived hyperpolarizing

**Caution: Product has not been fully validated for medical applications. For research use only.**

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factor (EDHF) mediated relaxation of the rat isolated mediated relaxation. The combination of TRAM-39 and apamin evoked a small, transient depolarization of endothelial cells.[2]

### References:

- [1] Ayabe T1, Wulff H, Darmoul D, etal. , Modulation of mouse Paneth cell alpha-defensin secretion by mIKCa1, a Ca<sup>2+</sup>-activated, intermediate conductance potassium channel. J Biol Chem. 2002 Feb 1;277(5):3793-800.
- [2]Hinton JM, Langton PD. Inhibition of EDHF by two new combinations of K<sup>+</sup>-channel inhibitors in rat isolated mesenteric arteries. Br J Pharmacol. 2003 Mar; 138(6):1031-5.
- [3]Burnham MP, Johnson IT, Weston AH. Impaired small-conductance Ca<sup>2+</sup>-activated K<sup>+</sup> channel-dependent EDHF responses in Type II diabetic ZDF rats. Br J Pharmacol. 2006 Jun;148(4):434-41.

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