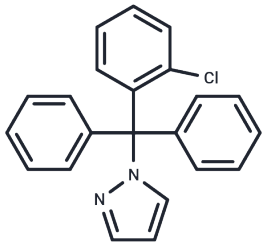
Data Sheet (Cat.No.T6186)

TRAM-34

Chemical Properties



CAS No. : 289905-88-0

Formula: C22H17ClN2

Molecular Weight: 344.84

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	TRAM-34 (Triarylmethane-34) (Kd=20 nM), an effective and specific inhibitor of the intermediate-conductance Ca2+-activated K+ channel (IKCa1, KCa3.1), does not block cytochrome P450. The selective activity of TRAM-34(TRAM 34) is 200 to 1500-fold than other ion channels.
Targets(IC50)	IκB/IKK,Potassium Channel
In vitro	Unlike clotrimazole, TRAM-34 selectively inhibits IKCa1 without blocking cytochrome P450 enzyme (CYP3A4). TRAM-34 potently inhibits cloned IKCa1 channel in IKCa1-transfected COS-7 cells as well as native IKCa currents in human T lymphocytes and T84 cells with Kd of 20 nM, 25 nM, and 22 nM, respectively, more potently than clotrimazole with Kd of 70 nM, 100 nM, and 90 nM, respectively. TRAM-34 exhibits 200- to 1,500-fold selectivity over other ion channels such as KV, BKCa, SKCa, Na+, CRAC, and Cl- channels. TRAM-34 significantly inhibits anti-CD3 Ab or PKC-activator PMA plus calcium-ionophore ionomycin-induced activation of human T lymphocytes with IC50 of 295-910 nM and 85-830 nM, respectively. TRAM-34 (5 μM) does not inhibit cell viability of human T lymphocytes or several cell lines. [1] TRAM-34 significantly inhibits EGF-induced IKCa1 up-regulation, and EGF-stimulated proliferation of A7r5 cells with IC50 of 8 nM. [2] TRAM-34 treatment inhibits proliferation of human endometrial cancer (EC) cells and blocks EC cell cycle at G0/G1 phase. [3]
In vivo	TRAM-34 treatment at ~500-1,000 times the channel-blocking dose (0.5 mg/kg/day) for 7 days is nontoxic to mice. [1] Administration of TRAM-34 at 120 mg/kg/day significantly reduces intimal hyperplasia by ~40% in a rat model of balloon catheter injury (BCI). [2] Consistent with it's in vitro role in inhibiting the proliferation of EC cells, TRAM-34 treatment at 30 μM slows the development of HEC-1-A tumor in vivo. [3]
Kinase Assay	Electrophysiology: The human IKCa1 is cloned and expressed in COS-7 cells. Cells are studied in the whole-cell configuration of the patch-clamp technique. The holding potential is 280 mV. The internal pipette solution contains: 145 mM K+ aspartate, 2 mM MgCl2, 10 mM Hepes, 10 mM K2EGTA, and 8.5 mM CaCl2 (1 μM free Ca2+), pH 7.2, 290-310 mOsm. To reduce currents from the native chloride channels in COS-7 cells, Na+ aspartate Ringer is used as an external solution: 160 mM Na+ aspartatey/4.5 mM KCl/2 mM CaCl2/1 mM MgCl2/5 mM Hepes, pH 7.4/290-310 mOsm. IKCa currents in COS-7 cells are elicited by 200-ms voltage ramps from -120 mV to 40 mV applied every 10 seconds and the reduction of slope conductance at -80 mV by TRAM-34 taken as a measure of channel block.

Cell Research	Cells are exposed to TRAM-34 for 48 hours. After 48 hours, cells are harvested by suction (suspension cells) or by trypsinization (adherent cell lines), centrifuged, resuspended in 0.5 mL PBS containing 1 μg/mL propidium iodide (PI), and red fluorescence measured on a FACScan flow cytometer. The percentage of dead cells is determined by their PI uptake, 104 cells of every sample being analyzed. (Only for Reference)

Solubility Information

Solubility	DMSO: 3.5 mg/mL (10 mM),Heating is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.8999 mL	14.4995 mL	28.999 mL
5 mM	0.580 mL	2.8999 mL	5.7998 mL
10 mM	0.290 mL	1.4499 mL	2.8999 mL
50 mM	0.058 mL	0.290 mL	0.580 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Wulff H, et al. Proc Natl Acad Sci U S A, 2000, 97(14), 8151-8156.
Köhler R, et al. Circulation, 2003, 108(9), 1119-1125.
Wang ZH, et al. Oncogene, 2007, 26(35), 5107-5114.
Lallet-Daher H, et al. Oncogene, 2009, 28(15), 1792-1806.