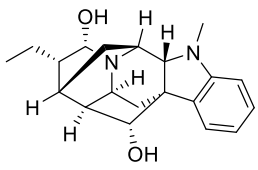
Product data sheet

MedKoo Cat#: 329405 Name: Ajmaline CAS#: 4360-12-7 (free base) Chemical Formula: $C_{20}H26N2O2$ Exact Mass: 326.1994 Molecular Weight: 326.44	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Ajmaline, also known as Gilurytmal and Ritmos, is a sodium channel blocker used to treat arrhythmia. Ajmaline is also often used to bring out typical findings of ST elevations in patients suspected of having Brugada syndrome.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	61.67	188.92
DMF	25.0	76.58
Ethanol	10.0	30.63
PBS (pH 7.2)	0.25	0.77

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	3.06 mL	15.32 mL	30.63 mL
5 mM	0.61 mL	3.06 mL	6.13 mL
10 mM	0.31 mL	1.53 mL	3.06 mL
50 mM	0.06 mL	0.31 mL	0.61 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Miller DC, Harmer SC, Poliandri A, Nobles M, Edwards EC, Ware JS, Sharp TV, McKay TR, Dunkel L, Lambiase PD, Tinker A. Ajmaline blocks INa and IKr without eliciting differences between Brugada syndrome patient and control human pluripotent stem cell-derived cardiac clusters. Stem Cell Res. 2017 Dec;25:233-244. doi: 10.1016/j.scr.2017.11.003. Epub 2017 Nov 7. PMID: 29172153; PMCID: PMC5727153.

In vivo study

1. Friedrich O, V Wegner F, Wink M, Fink RH. NA+- and K+-channels as molecular targets of the alkaloid ajmaline in skeletal muscle fibres. Br J Pharmacol. 2007 May;151(1):82-93. doi: 10.1038/sj.bjp.0707194. Epub 2007 Mar 12. PMID: 17351660.
2. Bébarová M, Matejovic P, Pásek M, Simurdová M, Simurda J. Effect of ajmaline on action potential and ionic currents in rat ventricular myocytes. Gen Physiol Biophys. 2005 Sep;24(3):311-25. PMID: 16308426.

7. Bioactivity
Biological target:
Ajmaline (Cardiorythmine) is a sodium channel blocking, class 1A anti-arrhythmic agent.

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In vitro activity

Following administration of ajmaline, this study observed marked inhibition of INa in hiPSC-CMs compared to baseline control (Fig. 3A, B), and this inhibition was partially recovered after washout: pA/pF control = -110 ± 18.7, ajmaline = -15.4 ± 4.4, washout = -55 ± 11.6. When isolating outward potassium currents, the perfusion of ajmaline at 100 μM also resulted in an approximate 50% reduction in current density and a complete disappearance of peak tail current density compared to baseline control, which could be partially recovered after washout (Fig. 3C–F). The complete loss of tail current indicates that ajmaline acts to completely block IKr at 100 μM. These data therefore show that ajmaline inhibits both sodium and potassium currents in hiPSC-CMs, and support our observation that ajmaline lengthens the activation-recovery interval of hiPSC cardiac clusters by inhibiting IKr.

Reference: Stem Cell Res. 2017 Dec; 25: 233–244. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5727153/

In vivo activity

Ajmaline effectively blocks not only voltage-gated Na+ currents but also K+ currents in frog skeletal muscle fibres. Interestingly, when comparing this 'loose-patch' data on IK blocking of ajmaline to those obtained under prolonged depolarizations using the 2-MVC technique, ajmaline seems to block early IK components with a higher potency than late steady-state IK after several 100 ms. In particular, 100 μM ajmaline showed clear effects, whereas for 25 μM of ajmaline effects on steady-state IK were much smaller. This lower concentration, however, already strongly reduced the early peak IK. This suggests differential affinities of ajmaline towards different Kv families expressed in skeletal muscle (see Figure 1a).

Reference: Br J Pharmacol. 2007 May;151(1):82-93. https://bpspubs.onlinelibrary.wiley.com/doi/full/10.1038/sj.bjp.0707194

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.