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DATASHEET

Ivermectin (IVM)

Product overview

Name	Ivermectin (IVM)
Cat No	HB1958
Alternative names	IVM
Biological action	Modulator
Purity	>95%
Description	$\alpha 7$ nicotinic acetylcholine receptor positive allosteric modulator. Activates GluCl/GlyCl chemogenetic channels. Shows antiviral activity.

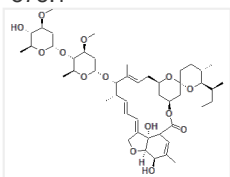
Biological Data

Biological description	Ivermectin (IVM) is an anthelmintic and positive allosteric modulator of $\alpha 7$ nicotinic acetylcholine receptors. It also shows activity at purinergic P2X₄ receptors. Ivermectin modulates glutamate- and GABA-activated chloride channels and potentiates glycine-gated currents at low concentrations (30 nM). Shows antimicrobial, anticancer and antiviral activities. Recently investigated as part of COVID-19 compound repurposing. Use in chemogenetics Ivermectin selectively activates the chemogenetic glutamate-gated chloride (GluCl) and glycine-gated chloride (GlyCl) channels which silence neuronal activity.
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Solubility & Handling

Storage instructions	+4 °C
Solubility overview	Soluble in DMSO (50 mM)
Important	This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use

Chemical Data

Chemical name	22,23-Dihydroavermectin B1
Molecular Weight	875.1
Chemical structure	

Molecular Formula	C ₄₈ H ₇₄ O ₁₄
CAS Number	70288-86-7
PubChem identifier	6321424
SMILES	<chem>CC[C@H](C)[C@@H]1[C@H](CC[C@@]2(O1)C[C@@H]3C[C@H](O2)C/C=C/[C@H]([C@H])/C=</chem>

Chemical name	22,23-Dihydroavermectin B1 <chem>C/C=C/4\CO[C@H]5[C@@]4([C@@H](C=C([C@H]5O)C)C(=O)O3)O)C)O[C@H]6C[C@@H]([C@H]([C@@H](O6)C)O[C@H]7C[C@@H]([C@H]([C@@H](O7)C)O)OC)OC)\C)C</chem>
InChi	InChI=1S/C48H74O14/c1-11-25(2)43-28(5)17-18-47(62-43)23-34-20-33(61-47)16-15-27(4)42(26(3)13-12-14-32-24-55-45-40(49)29(6)19-35(46(51)58-34)48(32,45)52)59-39-22-37(54-10)44(31(8)57-39)60-38-21-36(53-9)41(50)30(7)56-38/h12-15,19,25-26,28,30-31,33-45,49-50,
InChiKey	AZSNMRSAGSSBNP-XPNPUAGNSA-N
MDL number	MFCD00869511
Appearance	White solid

References

Ivermectin: a positive allosteric effector of the alpha7 neuronal nicotinic acetylcholine receptor.

Krause et al (1998) Mol Pharmacol 53(2)

PubMedID [9463487](#)

An engineered glutamate-gated chloride (GluCl) channel for sensitive, consistent neuronal silencing by ivermectin.

Frazier et al (23720773) J Biol Chem 288(29)

Ivermectin-Activated, Cation-Permeable Glycine Receptors for the Chemogenetic Control of Neuronal Excitation.

Islam et al (2016) ACS Chem Neurosci 7(12)

PubMedID [27611437](#)

A Chemogenetic Receptor That Enhances the Magnitude and Frequency of Glycinergic Inhibitory Postsynaptic Currents without Inducing a Tonic Chloride Flux.

Islam et al (2017) ACS Chem Neurosci 8(3)

PubMedID [27958714](#)

Ivermectin: potential candidate for the treatment of Covid 19

Singh et al (2020) Braz J Infect Dis. S1413-8670

PubMedID [32615072](#)
