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Produktinformation

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- Diagnostik & molekulare Diagnostik
- Laborgeräte & Service

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Lieferung & Zahlungsart

siehe unsere Liefer- und Versandbedingungen

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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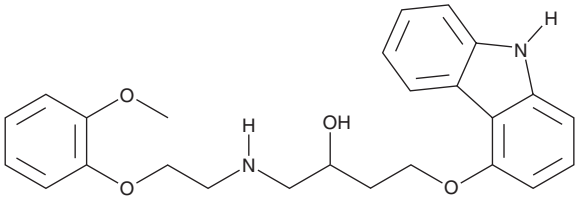
PRODUCT INFORMATION

VK-II-86

Item No. 36677

CAS Registry No.:	955371-84-3
Formal Name:	4-(9H-carbazol-4-yloxy)-1-[[2-(2-methoxyphenoxy)ethyl]amino]-2-butanol
MF:	$C_{25}H_{28}N_2O_4$
FW:	420.5
Purity:	≥90%
UV/Vis.:	λ_{max}: 244 nm
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

VK-II-86 is supplied as a solid. A stock solution may be made by dissolving the VK-II-86 in the solvent of choice, which should be purged with an inert gas. VK-II-86 is soluble in the organic solvent DMSO.

Description

VK-II-86 is an inhibitor of store-overload-induced calcium release (SOICR) and a derivative of carvedilol (Item No. 15418).[1] It inhibits SOICR in HEK293 cells expressing the ryanodine receptor 2 (RyR2) R4496C ($RyR2^{R4496C}$) mutation (IC_{50} = 16.8 µM), a mutation that results in spontaneous calcium release from the endoplasmic reticulum. VK-II-86 (1 µM) inhibits the inward-rectifier potassium channel 2.1 ($K_{ir}2.1$), cardiac late sodium current (late I_{Na}), and L-type calcium current (I_{Ca}) in isolated canine cardiomyocytes and delayed-rectifier potassium current (I_{Kr}) in HEK293 cells expressing human-ether-a-go-go (hERG), also known as $K_V11.1$, in hypokalaemic, but not normokalaemic, conditions.[2] It is also an antagonist of toll-like receptor 4 (TLR4; IC_{50} = 32.55 µM in HEK293 cells expressing the human receptor) and inhibits hyperpolarization-activated cyclic nucleotide gated potassium channel 4 (HCN4) in COS-7 cells expressing HCN4 when used at a concentration of 10 µM.[3] VK-II-86 prevents hypokalaemia-induced ventricular arrhythmia in isolated Langendorff-perfused mouse hearts.[2] Unlike the β-adrenergic receptor antagonist carvedilol, it does not reverse isoproterenol-induced increases in heart rate or decrease resting heart rate in $RyR2^{R4496C}$-expressing mice.[4]

References

1. Smith, C.D., Wang, A., Vembaiyan, K., *et al.* Novel carvedilol analogues that suppress store-overload-induced Ca^{2+} release. *J. Med. Chem.* **56(21)**, 8625-8655 (2013).
2. Robinson, V.M., Alsalahat, I., Freeman, S., *et al.* A carvedilol analogue, VK-II-86, prevents hypokalaemia-induced ventricular arrhythmia through novel multi-channel effects. *Br. J. Pharmacol.* **179(11)**, 2713-2732 (2022).
3. Xu, Y., Chen, S., Cao, Y., *et al.* Discovery of novel small molecule TLR4 inhibitors as potent anti-inflammatory agents. *Eur. J. Med. Chem.* **154**, 253-266 (2018).
4. Zhou, Q., Xiao, J., Jiang, D., *et al.* Carvedilol and its new analogs suppress arrhythmogenic store overload-induced Ca^{2+} release. *Nat. Med.* **17(8)**, 1003-1009 (2011).

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