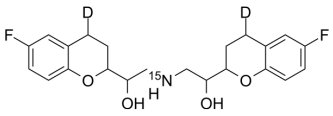
(Rac)-Nebivolol-d_2,^{15}N

Cat. No.:	HY-B0203BS2
Molecular Formula:	$C_{22}H_{23}D_2F_2{}^{15}NO_4$
Molecular Weight:	408.44
Target:	NADPH Oxidase; Adrenergic Receptor; Isotope-Labeled Compounds
Pathway:	Metabolic Enzyme/Protease; GPCR/G Protein; Neuronal Signaling; Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	(Rac)-Nebivolol-d_2,^{15}N is ^{15}N and deuterated labeled (Rac)-Nebivolol (HY-B0203B). (Rac)-Nebivolol ((Rac)-R 065824) is a racemic isomer of Nebivolol. Nebivolol is a selective β1-adrenergic receptor antagonist with an IC_{50} value of 0.8 nM. Nebivolol can prevent up-regulation of Nox2/NADPH oxidase and lipoperoxidation in the early stages of ethanol-induced cardiac toxicity. Vasodilatory activity[1][2].
In Vitro	Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Nebivolol (10 mg/kg; daily for 7 days) markedly improves endothelial dysfunction and increases P-VASP levels; prevents NOS III uncoupling; significantly inhibit NADPH oxidase in Angiotensin II-treated rats[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. do Vale GT, et al. Nebivolol Prevents Up-Regulation of Nox2/NADPH Oxidase and Lipoperoxidation in the Early Stages of Ethanol-Induced Cardiac Toxicity. Cardiovasc Toxicol. 2021 Mar;21(3):224-235.

[2]. Cockcroft JR, et al. Nebivolol vasodilates human forearm vasculature: evidence for an L-arginine/NO-dependent mechanism. J Pharmacol Exp Ther. 1995 Sep;274(3):1067-71.

[3]. Oelze M, et al. Nebivolol inhibits superoxide formation by NADPH oxidase and endothelial dysfunction in angiotensin II-treated rats. Hypertension. 2006 Oct;48(4):677-84.

[4]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. Ann Pharmacother. 2019 Feb;53(2):211-216.

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