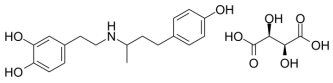
Dobutamine tartrate

Cat. No.:	HY-15746B
CAS No.:	101626-66-8
Molecular Formula:	$C_{22}H_{29}NO_9$
Molecular Weight:	451.47
Target:	Adrenergic Receptor
Pathway:	GPCR/G Protein; Neuronal Signaling
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Dobutamine tartrate is a synthetic catecholamine that acts on α1-AR, β1-AR, β2-AR (α-1, β-1 andβ-2 adrenoceptors). Dobutamine tartrate is a selective β1-AR agonist, relatively weak activity at α1-AR and β2-AR. Dobutamine tartrate can increase cardiac output and correct hypoperfusion[1][2][3][4].

In Vivo

Dobutamine tartrate has a rapid onset of action and a short half-life [2].
Dobutamine tartrate (0.15-20 mg/kg; i.p.) results in subsequent increase in the left ventricular function and heart rate acceleration with an increasing dose in wildtype mice[3].
Dobutamine tartrate results in significant inotropic, lusitropic, and chronotropic cardiac response with a high dose in wildtype mice[3].
Low doses of Dobutamine tartrate significantly increases inotropic and lusitropic cardiac performance without chronotropic changes in the Tgαq*44 mice[3].
Dobutamine tartrate increases heart rate only after high doses, but then inotropic and lusitropic cardiac functional reserve is lost[3].
Dobutamine tartrate increases alveolar liquid clearance in ventilated rats by beta-2 receptor stimulation[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Tgαq*44 mice (heart failure models)[3]
Dosage:	0.15 mg/kg, 0.5 mg/kg as a low dose, 1.5 mg/kg, 5 mg/kg, 20 mg/kg as a high dose
Administration:	Intraperitoneal injection
Result:	Induced different response in cardiac function on a low and high dose in mice with with heart failure.

CUSTOMER VALIDATION

- Front Cell Dev Biol. 2022 Apr 20;10:889656.

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REFERENCES

[1]. Tuttle RR, et al. Dobutamine: development of a new catecholamine to selectively increase cardiac contractility. Circ Res. 1975 Jan;36(1):185-96.

[2]. Vallet B, et al. Dobutamine: mechanisms of action and use in acute cardiovascular pathology. Ann Cardiol Angeiol (Paris). 1991 Jun;40(6):397-402.

[3]. Tyrankiewicz U , et al. Characterization of the cardiac response to a low and high dose of dobutamine in the mouse model of dilated cardiomyopathy by MRI in vivo. J Magn Reson Imaging. 2013 Mar;37(3):669-77.

[4]. Tibayan FA, et al. Dobutamine increases alveolar liquid clearance in ventilated rats by beta-2 receptor stimulation. Am J Respir Crit Care Med. 1997 Aug;156(2 Pt 1):438-44.

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