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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

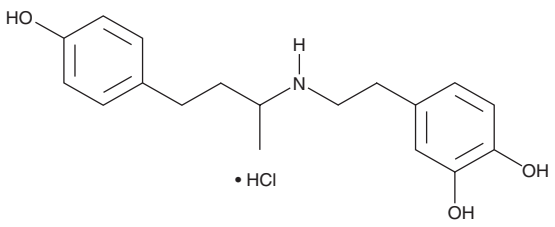
linkedin.com/company/szaboscandic

PRODUCT INFORMATION

Dobutamine (hydrochloride)

Item No. 15582

CAS Registry No.: 49745-95-1
Formal Name: 4-[2-[[3-(4-hydroxyphenyl)-1-methylpropyl]amino]ethyl]-1,2-benzenediol, monohydrochloride
Synonyms: Dobutrex, Inotrex, NSC 299583
MF: $C_{18}H_{23}NO_3 \bullet HCl$
FW: 337.9
Purity: ≥95%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: λ_{max}: 225, 280 nm



Laboratory Procedures

For long term storage, we suggest that dobutamine (hydrochloride) be stored as supplied at -20°C. It should be stable for at least two years.

Dobutamine (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the dobutamine (hydrochloride) in the solvent of choice. Dobutamine (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of dobutamine (hydrochloride) in these solvents is approximately 1, 12, and 20 mg/ml, respectively.

Dobutamine (hydrochloride) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, dobutamine (hydrochloride) should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Dobutamine (hydrochloride) has a solubility of approximately 0.1 mg/ml in a 1:7 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Dobutamine is a catecholamine that acts as a β-adrenergic receptor agonist with potent positive inotropic effects *in vivo*.[1-3] It has its strongest effects on β_1 receptors, with lesser but significant β_2 receptor activation and only weak α_1 receptor actions.[1,2] As a result, it strongly increases cardiac contractility with modest chronotropic, arrhythmogenic, and vascular side effects.[1] Dobutamine is also a polyphenolic antioxidant and can inhibit all human carbonic anhydrase isoforms with K_i values near 1 µM.[4]

References

1. Tuttle, R.R. and Mills, J. Dobutamine: Development of a new catecholamine to selectively increase cardiac contractility. *Circ. Res.* **36(1)**, 185-196 (1975).
2. Deighton, N.M., Motomura, A., Bals, S., *et al.* Characterization of the beta adrenoceptor subtype(s) mediating the positive inotropic effects of epinine, dopamine, dobutamine, denopamine and xamoterol in isolated human right atrium. *J. Pharmacol. Exp. Ther.* **262(2)**, 532-538 (1992).
3. Brown, L., Näbauer, M., and Erdmann, E. Dobutamine: Positive inotropy by nonselective adrenoceptor agonism in isolated guinea pig and human myocardium. *Naunyn Schmiedebergs Arch. Pharmacol.* **335(4)**, 385-390 (1987).
4. Innocenti, A., Gülēin, I., Scozzafava, A., *et al.* Carbonic anhydrase inhibitors. Antioxidant polyphenols effectively inhibit mammalian isoforms I-XV. *Bioorg. Med. Chem. Lett.* **20(17)**, 5050-5053 (2010).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM