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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

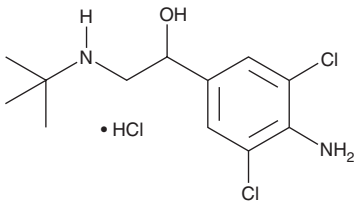
linkedin.com/company/szaboscandic

PRODUCT INFORMATION

Clenbuterol (hydrochloride)

Item No. 14985

CAS Registry No.: 21898-19-1
Formal Name: 4-amino-3,5-dichloro-α-[[(1,1-dimethylethyl)amino] methyl]-benzenemethanol, monohydrochloride
Synonym: NAB 365
MF: $C_{12}H_{18}Cl_2N_2O \bullet HCl$
FW: 313.7
Purity: ≥98%
UV/Vis.: λ_{max}: 211, 248, 302 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



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

Laboratory Procedures

Clenbuterol (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the clenbuterol (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Clenbuterol (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of clenbuterol (hydrochloride) in these solvents is approximately 12, 20, and 25 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of clenbuterol (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of clenbuterol (hydrochloride) in PBS (pH 7.2) is approximately 3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Clenbuterol is an agonist of β_2-adrenergic receptors (β_2-ARs).[1] It induces relaxation of equine tracheal muscle strips (EC_{50} = 2.1 nM). Clenbuterol (300 nM) increases the number of autophagosomes and autophagic flux in HepG2 cells.[2] It increases blood flow to adipose tissue and induces weight gain in rats when administered at a dose of 2 mg/kg, as well as induces relaxation of bovine uterus.[3,4] Clenbuterol also inhibits infection of MDCK cells by an H1N1 influenza isolate *in vitro* (EC_{50} = 9.4 µM).[5] Formulations containing clenbuterol have been used in the treatment of airway obstruction in horses.

References

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2. Farah, B.L., Sinha, R.A., Wu, Y., *et al.* β-Adrenergic agonist and antagonist regulation of autophagy in HepG2 cells, primary mouse hepatocytes, and mouse liver. *PLoS One* **9(6)**, (2014).
3. Rothwell, N.J., Stock, M.J., and Sudera, D.K. Changes in tissue blood flow and β-receptor density of skeletal muscle in rats treated with the β_2-adrenoceptor agonist clenbuterol. *Br. J. Pharmacol.* **90(3)**, 601-607 (1987).
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5. Jang, Y., Shin, J.S., Lee, J.-Y., *et al.* In vitro and in vivo antiviral activity of nylidrin by targeting the hemagglutinin 2-mediated membrane fusion of influenza A virus. *Viruses* **12(5)**, 581 (2020).

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