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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

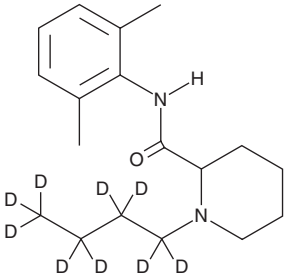
linkedin.com/company/szaboscandic

PRODUCT INFORMATION

Bupivacaine-d_9

Item No. 18246

CAS Registry No.: 474668-57-0
Formal Name: 1-(butyl-d_9)-N-(2,6-dimethylphenyl)-2-piperidinecarboxamide
MF: $C_{18}H_{19}D_9N_2O$
FW: 297.5
Chemical Purity: ≥98% (Bupivacaine)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_9); ≤1% d_0
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

Bupivacaine-d_9 is intended for use as an internal standard for the quantification of bupivacaine (Item No. 16618) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Bupivacaine-d_9 is supplied as a solid. A stock solution may be made by dissolving the bupivacaine-d_9 in the solvent of choice, which should be purged with an inert gas. Bupivacaine-d_9 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of bupivacaine-d_9 in ethanol and DMF is approximately 30 mg/ml and approximately 25 mg/ml in DMSO.

Description

Bupivacaine is a sodium channel blocker and local anesthetic.[1,2] It inhibits sodium currents in rat dorsal horn neurons in a concentration-dependent manner and inhibits synaptic transmission in rat sympathetic ganglia, increasing the firing threshold when used at a concentration of 200 nM.[3,4] Bupivacaine (10 µM) blocks cardiac sodium channels in a use-dependent manner and inhibits respiration in cardiac cell mitochondria when palmitoyl-carnitine or acetyl-carnitine are used as substrates (IC_{50}s = 0.78 and 0.37 mM, respectively).[1,5] It also reduces thermal hyperplasia in a rat model of sciatic ligation injury when 0.6 ml of a 0.5% solution is administered into the perinerve space, and the duration of this effect is extended by co-administration of the NMDA receptor antagonist MK-801 (Item No. 10009019).[2] Formulations containing bupivacaine have been used as local anesthetics for surgery, oral surgery, and dental procedures and for anesthetic purposes in research studies using animals.

References

1. Arlock, P. *Pharmacol. Toxicol.* **63(2)**, 96-104 (1988).
2. Mao, J., Price, D.D., Mayer, D.J., *et al. Brain Res.* **576(2)**, 254-262 (1992).
3. Olschewski, A., Hempelmann, G., Vogel, W., *et al. Anesthesiology* **88(1)**, 172-179 (1998).
4. Tabatabai, M. and Booth, A.M. *Anesth. Analg.* **71(2)**, 149-157 (1990).
5. Weinberg, G.L., Palmer, J.W., VadeBoncouer, T.R., *et al. Anesthesiology* **92(2)**, 523-528 (2000).

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