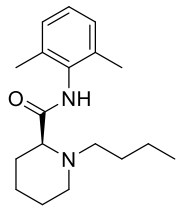
Product data sheet

MedKoo Cat#: 319941 Name: Levobupivacaine free base CAS#: 27262-47-1 (free base) Chemical Formula: $C_{18}H_{28}N_2O$ Exact Mass: 288.2202 Molecular Weight: 288.435	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

Levobupivacaine is a local anaesthetic drug belonging to the amino amide group. It is the S-enantiomer of bupivacaine. Levobupivacaine hydrochloride is commonly marketed by Abbott under the trade name Chirocaine. Levobupivacaine is indicated for local anaesthesia including infiltration, nerve block, ophthalmic, epidural and intrathecal anaesthesia in adults; and infiltration analgesia in children. Compared to bupivacaine, levobupivacaine is associated with less vasodilation and has a longer duration of action. It is approximately 13 percent less potent (by molarity) than racemic bupivacaine and has a longer motor block onset time.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	58.0	201.09
Ethanol	58.0	201.09

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	3.47 mL	17.33 mL	34.67 mL
5 mM	0.69 mL	3.47 mL	6.93 mL
10 mM	0.35 mL	1.73 mL	3.47 mL
50 mM	0.07 mL	0.35 mL	0.69 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Kwakye AK, Kampo S, Lv J, Ramzan MN, Richard SA, Falagán AA, Agudogo J, Atito-Narh E, Yan Q, Wen QP. Levobupivacaine inhibits proliferation and promotes apoptosis of breast cancer cells by suppressing the PI3K/Akt/mTOR signalling pathway. BMC Res Notes. 2020 Aug 17;13(1):386. doi: 10.1186/s13104-020-05191-2. PMID: 32807213; PMCID: PMC7430121.
2. Jose C, Hebert-Chatelain E, Dias Amoedo N, Roche E, Obre E, Lacombe D, Rezvani HR, Pourquier P, Nouette-Gaulain K, Rossignol R. Redox mechanism of levobupivacaine cytostatic effect on human prostate cancer cells. Redox Biol. 2018 Sep;18:33-42. doi: 10.1016/j.redox.2018.05.014. Epub 2018 May 31. PMID: 29935387; PMCID: PMC6019688.

In vivo study

1. Tuncer S, Tuncer Peker T, Burat İ, Kiziltan E, İlhan B, Dalkiliç N. Axonal excitability and conduction alterations caused by levobupivacaine in rat. Acta Pharm. 2017 Sep 1;67(3):293-307. doi: 10.1515/acph-2017-0025. PMID: 28858839.
2. Özcan MS, Kalem M, Özçelik M, Şahin E, Çakar S, Hayırlı N, Evirgen O, Ökten F. The effect of intra-articular levobupivacaine on shoulder cartilage at different doses-experimental study. Braz J Anesthesiol. 2017 Jan-Feb;67(1):42-49. doi: 10.1016/j.bjane.2015.08.008. Epub 2016 Apr 20. PMID: 28017169.

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7. Bioactivity

Biological target:

Levobupivacaine (Chirocaine, (S)-(-)-Bupivacaine, L-(-)-Bupivacaine) inhibits the opening of voltage-gated sodium channels.

In vitro activity

In the present study, the role of levobupivacaine on the expression of PI3K, Akt, and mTOR was investigated to illustrate the potential molecular mechanism. This study observed a significantly decreased expression of p-Akt, p-PI3K, p-mTOR and subsequent decreased expression of FOXO, Cyclin D1 and Bcl-2 following levobupivacaine treatment which correlated with decreased breast cancer cells proliferation and increased apoptosis. These emerging pieces of evidence suggest that levobupivacaine may inhibit proliferation and promote apoptosis by suppressing PI3K/Akt/mTOR signalling pathway, which demonstrated an anti-tumour effect on breast cancer cells in this study.

Reference: BMC Res Notes. 2020; 13: 386. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7430121/

In vivo activity

The CNAP depression eff ect of levobupivacaine on isolated rat sciatic nerves is given in Fig. 2. This sample CNAP recording demonstrates that levobupivacaine administration suppresses the CNAPs recorded from isolated nerves in a time-dependent manner, completely abolishing the CNAPs within 25 min. This eff ect was found to be reversible. Changes in the area under CNAP, CNAP amplitude, conduction velocities of the fastest (CVinit) and medium velocity (CVpeak) fiber groups were computed using CNAP data at 5-min intervals aft er the administration (t = 0) of levobupivacaine (Fig. 3).

Reference: Acta Pharm. 2017 Sep 1;67(3):293-307. https://sciendo.com/article/10.1515/acph-2017-0025

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.