# Product data sheet

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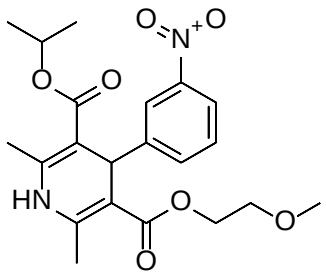
|---|---|
| MedKoo Cat#: 318367<br>Name: Nimodipine<br>CAS: 66085-59-4<br>Chemical Formula: $C_{21}H_{26}N_2O_7$<br>Exact Mass: 418.174<br>Molecular Weight: 418.4403 |  |
| Product supplied as: | Powder |
| Purity (by HPLC): | ≥ 98% |
| Shipping conditions | Ambient temperature |
| Storage conditions: | Powder: -20°C 3 years; 4°C 2 years. |
| | In solvent: -80°C 3 months; -20°C 2 weeks. |

**1. Product description:**
Nimodipine is a dihydropyridine calcium channel blocker originally developed for the treatment of high blood pressure. It is not frequently used for this indication, but has shown good results in preventing a major complication of subarachnoid hemorrhage (a form of cerebral hemorrhage) termed vasospasm, which is now the main use of nimodipine.

**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 |
|---|---|---|
| DMF | 30.0 | 71.69 |
| DMF:PBS (pH 7.2) (1:4) | 0.2 | 0.48 |
| DMSO | 62.71 | 149.87 |
| Ethanol | 43.0 | 102.76 |

**4. Stock solution preparation table:**

| Concentration / Solvent Volume / Mass | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 2.39 mL | 11.95 mL | 23.90 mL |
| 5 mM | 0.48 mL | 2.39 mL | 4.78 mL |
| 10 mM | 0.24 mL | 1.20 mL | 2.39 mL |
| 50 mM | 0.05 mL | 0.24 mL | 0.48 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. Moyer JR Jr, Thompson LT, Black JP, Disterhoft JF. Nimodipine increases excitability of rabbit CA1 pyramidal neurons in an age- and concentration-dependent manner. J Neurophysiol. 1992 Dec;68(6):2100-9. doi: 10.1152/jn.1992.68.6.2100. PMID: 1491260.
2. Honn KV, Onoda JM, Diglio CA, Carufel MM, Taylor JD, Sloane BF. Inhibition of tumor cell-platelet interactions and tumor metastasis by the calcium channel blocker, nimodipine. Clin Exp Metastasis. 1984 Jan-Mar;2(1):61-72. doi: 10.1007/BF00132307. PMID: 6543691.

In vivo study

1. Kuzmin A, Zvartau E, Gessa GL, Martellotta MC, Fratta W. Calcium antagonists isradipine and nimodipine suppress cocaine and morphine intravenous self-administration in drug-naive mice. Pharmacol Biochem Behav. 1992 Mar;41(3):497-500. doi: 10.1016/0091-3057(92)90363-k. PMID: 1533936.

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2. Bobbin RP, Jastreboff PJ, Fallon M, Littman T. Nimodipine, an L-channel Ca2+ antagonist, reverses the negative summating potential recorded from the guinea pig cochlea. Hear Res. 1990 Jul;46(3):277-87. doi: 10.1016/0378-5955(90)90009-e. PMID: 2168361.

**7. Bioactivity**

Biological target:

Nimodipine is a dihydropyridine calcium channel blocker.

In vitro activity

Nimodipine decreased both the peak amplitude and the integrated area of the AHP in an age- and concentration-dependent manner. At concentrations as low as 100 nM, nimodipine significantly reduced the AHP in aging CA1 neurons. In young CA1 neurons, nimodipine decreased the AHP only at 10 microM.

Reference: J Neurophysiol. 1992 Dec;68(6):2100-9. https://pubmed.ncbi.nlm.nih.gov/1491260/

In vivo activity

Cochlear perfusion of nimodipine resulted in reversible, dose-related suppression of the compound action potential of the auditory nerve (CAP; N1-P1), a prolongation of N1 latency at suprathreshold levels, an elevated CAP threshold, a decrease in N1 latency at a constant amplitude measured at CAP threshold, a reduction in cochlear microphonics (CM), and a reduction of the negative summating potential (SP) to a point where it became positive (i.e., a reversal of SP).

Reference: Hear Res. 1990 Jul;46(3):277-87. https://pubmed.ncbi.nlm.nih.gov/2168361/

*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.*