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# Produktinformation

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- Diagnostik & molekulare Diagnostik
- Laborgeräte & Service

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## Lieferung & Zahlungsart

siehe unsere Liefer- und Versandbedingungen

## Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand


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# Nifedipine-$^{13}C_8$

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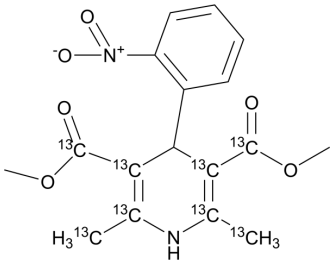
|---|---|
| **Cat. No.:** | HY-B0284S2 |
| **CAS No.:** | 1173023-46-5 |
| **Molecular Formula:** | $C_9{}^{13}C_8H_{18}N_2O_6$ |
| **Molecular Weight:** | 354.28 |
| **Target:** | Calcium Channel; Autophagy; Isotope-Labeled Compounds |
| **Pathway:** | Membrane Transporter/Ion Channel; Neuronal Signaling; Autophagy; Others |
| **Storage:** | Please store the product under the recommended conditions in the Certificate of Analysis. |



## BIOLOGICAL ACTIVITY

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|---|---|
| **Description** | Nifedipine-13C8 is a deuterated labeled Nifedipine[1]. Nifedipine (BAY-a-1040) is a potent calcium channel blocker and agent of choice for cardiac insufficiencies. |
| **In Vitro** | Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs[1].<br>Nifedipine (BAY-a-1040) (100 μM) significantly lowers the viability of the WKPT-0293 Cl.2 Cells, and treatment of nifedipine (10 or 100 μM) plus FAC induces a significant reduction in cell viability, but there are no significant differences in viability between the control cells and the cells treated with 100 μM of FAC or 1 and 10 μM of nifedipine.Nifedipine (BAY-a-1040) (1, 10, or 100 μM) significantly increases iron level in WKPT-0293 Cl.2 cells. Nifedipine treatment also increases expression of TfR1, DMT1+IRE and DMT1-IRE in WKPT-0293 Cl.2 cells. In addition, co-treatment with nifedipine (100 μM) and FAC (100 μM) increases TfR1, DMT1+IRE and DMT1-IRE expression in WKPT-0293 Cl.2 cells[3]. Nifedipine plus ritodrine produces a significantly greater inhibition of contractility than each drug alone in the midrange of concentrations. The combination of nifedipine plus nitroglycerin or nifedipine plus atosiban produces a significantly greater inhibition than nitroglycerin or atosiban alone but not greater than nifedipine. The combination of nifedipine plus NS-1619 ($Ca^{2+}$-activated $K^+$ [BKCa] channel opener) reduces the inhibitory effect of each drug[4]. Nifedipine (BAY-a-1040) (2 μM) significantly inhibits P. capsici mycelial growth and sporulation. Nifedipine (BAY-a-1040)-induced inhibition of mycelial growth is calcium-dependent. Nifedipine (0.5 μM) increases P. capsici sensitivity to $H_2O_2$ in a calcium-dependent manner[5].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |
| **In Vivo** | In Nifedipine (BAY-a-1040) (50 mg/kg)- and CsA-treated rats, the BL dimensions (BLi and BLk), MD dimensions (MDk) and vertical dimensions (VHi and VHk) are significantly increased ($P < 0.05$) at the end of the 4th week[2].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |

## REFERENCES

[1]. Carvajal JA, et al. The Synergic In Vitro Tocolytic Effect of Nifedipine Plus Ritodrine on Human Myometrial Contractility. Reprod Sci. 2017 Apr;24(4):635-640.

[2]. Ratre MS, et al. Effect of azithromycin on gingival overgrowth induced by cyclosporine A + nifedipine combination therapy: A morphometric analysis in rats. J Indian Soc Periodontol. 2016 Jul-Aug;20(4):396-401.

[3]. Liu P, et al. The L-type Ca(2+) Channel Blocker Nifedipine Inhibits Mycelial Growth, Sporulation, and Virulence of Phytophthora capsici. Front Microbiol. 2016 Aug 4;7:1236.

[4]. Yu SS, et al. Nifedipine Increases Iron Content in WKPT-0293 Cl.2 Cells via Up-Regulating Iron Influx Proteins. Front Pharmacol. 2017 Feb 13;8:60

[5]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. Ann Pharmacother. 2019 Feb;53(2):211-216.



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