



# SZABO SCANDIC

Part of Europa Biosite

## Produktinformation



Forschungsprodukte & Biochemikalien



Zellkultur & Verbrauchsmaterial



Diagnostik & molekulare Diagnostik



Laborgeräte & Service

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- Gefahrgutzuschlag
- Expressversand

### 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](mailto:mail@szabo-scandic.com)

[www.szabo-scandic.com](http://www.szabo-scandic.com)

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

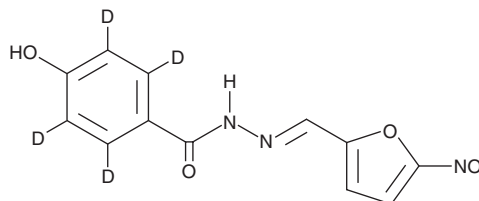
# PRODUCT INFORMATION



## Nifuroxazide-d<sub>4</sub>

Item No. 33382

**CAS Registry No.:** 1188487-83-3  
**Formal Name:** 4-hydroxy-benzoic acid, 2-[(5-nitro-2-furanyl)methylene-d<sub>4</sub>]hydrazide  
**MF:** C<sub>12</sub>H<sub>5</sub>D<sub>4</sub>N<sub>3</sub>O<sub>5</sub>  
**FW:** 279.2  
**Chemical Purity:** ≥95% (Nifuroxazide)  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>4</sub>); ≤1% d<sub>0</sub>  
**Supplied as:** A 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

Nifuroxazide-d<sub>4</sub> is intended for use as an internal standard for the quantification of nifuroxazide (Item No. 18163) 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).

Nifuroxazide-d<sub>4</sub> is supplied as a solid. A stock solution may be made by dissolving the nifuroxazide-d<sub>4</sub> in the solvent of choice, which should be purged with an inert gas. Nifuroxazide-d<sub>4</sub> is soluble in DMSO and dimethyl formamide.

### Description

Nifuroxazide is a nitrofurantoin antibiotic.<sup>1</sup> It is active against strains of the enteropathogenic bacteria *C. jejuni*, *Salmonella*, *Y. enterocolitica*, *Shigella*, and *E. coli*.<sup>1</sup> It inhibits quorum sensing and virulence factor production in *P. aeruginosa*.<sup>2</sup> Nifuroxazide inhibits STAT3 activity in a reporter assay (IC<sub>50</sub> = ~3 μM) and decreases viability of U266 and INA-6 myeloma cells, which have constitutive STAT3 phosphorylation, with EC<sub>50</sub> values of approximately 4.5 μM for both.<sup>3</sup> It also decreases viability, migration, and invasion of, and induces apoptosis in, MCF-7, 4T1, and MDA-MB-231 breast cancer cells.<sup>4</sup> Nifuroxazide (50 mg/kg per day) reduces tumor growth and prevents pulmonary metastasis in a 4T1 murine mammary carcinoma model. It also reduces diarrhea, weight loss, and colon inflammation in a rat model of acetic acid-induced ulcerative colitis.<sup>5</sup>

### References

1. Vanhoof, R., Coignau, H., Stas, G., *et al.* Evaluation of the in vitro activity of nifuroxazide on enteropathogenic microorganisms: Determination of bacteriostatic and bactericidal concentrations and disk susceptibility. *Acta Clin. Belg.* **36**(3), 126-129 (1981).
2. Yang, L., Rybtke, M.T., Jakobsen, T.H., *et al.* Computer-aided identification of recognized drugs as *Pseudomonas aeruginosa* quorum-sensing inhibitors. *Antimicrob. Agents Chemother.* **53**(6), 2432-2443 (2009).
3. Nelson, E.A., Walker, S.R., Kepich, A., *et al.* Nifuroxazide inhibits survival of multiple myeloma cells by directly inhibiting STAT3. *Blood* **112**(13), 5095-5102 (2008).
4. Yang, F., Hu, M., Lei, Q., *et al.* Nifuroxazide induces apoptosis and impairs pulmonary metastasis in breast cancer model. *Cell Death Dis.* **6**(3), e1701 (2015).
5. El-Far, Y.M., Elsherbiny, N.M., El-Shafey, M., *et al.* The interplay of the inhibitory effect of nifuroxazide on NF-κB/STAT3 signaling attenuates acetic acid-induced ulcerative colitis in rats. *Environ. Toxicol. Pharmacol.* **79**, 103433 (2020).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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#### 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