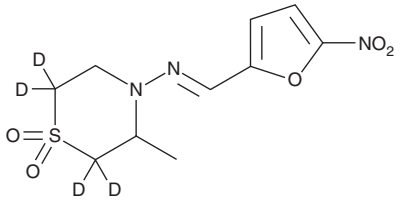
PRODUCT INFORMATION

Nifurtimox-d_4

Item No. 28889

Formal Name:	(E)-3-methyl-4-(((5-nitrofuran-2-yl)methylene) amino)thiomorpholine 1,1-dioxide-2,2,6,6-d_4
MF:	$C_{10}H_9D_4N_3O_5S$
FW:	291.3
Chemical Purity:	≥98% (Nifurtimox)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_4); ≤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

Nifurtimox-d_4 is intended for use as an internal standard for the quantification of nifurtimox (Item No. 21784) 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).

Nifurtimox-d_4 is supplied as a solid. A stock solution may be made by dissolving the nifurtimox-d_4 in the solvent of choice, which should be purged with an inert gas. Nifurtimox-d_4 is soluble in DMSO and in a 1:1 solution of acetonitrile:methanol.

Description

Nifurtimox-d_4 is intended for use as an internal standard for the quantification of nifurtimox (Item No. 21784) by GC- or LC-MS. Nifurtimox is an antiprotozoal agent.[1] It is active against Taluahuén, LQ, and Brener strains of *T. cruzi* epimastigotes with IC_{50} values of 9.91, 12.28, and 10.44 µM, respectively. Nifurtimox inhibits clonogenic growth of HCT116, H838, C33A, LN18, KNS42, MDA-MB-231, and FaDu tumor cells under hypoxic conditions.[2] It reduces parasitemia and increases survival in a mouse model of *T. cruzi* infection when administered at doses of 10 and 40 mg/kg per day.[3] Dietary administration of nifurtimox (150 mg/kg per day for 28 days) increases tumor cell apoptosis and reduces tumor growth in an SMS-KCNR mouse xenograft model.[4]

References

1. Maya, J.D., Bollo, S., Nuñez-Vergara, L.J., *et al.* Trypanosoma cruzi: Effect and mode of action of nitroimidazole and nitrofuran derivatives. *Biochem. Pharmacol.* **65(6)**, 999-1006 (2003).
2. Li, Q., Lin, Q., Kim, H., *et al.* The anti-protozoan drug nifurtimox preferentially inhibits clonogenic tumor cells under hypoxic conditions. *Am. J. Cancer Res.* **7(5)**, 1084-1095 (2017).
3. Santeliz, S., Caicedo, P., Giraldo, E., *et al.* Dipyridamole potentiated the trypanocidal effect of nifurtimox and improved the cardiac function in NMRI mice with acute chagasic myocarditis. *Mem. Inst. Oswaldo Cruz* **112(9)**, 596-608 (2017).
4. Saulnier Sholler, G.L., Brard, L., Straub, J.A., *et al.* Nifurtimox induces apoptosis of neuroblastoma cells in vitro and in vivo. *J. Pediatr. Hematol. Oncol.* **31(3)**, 187-193 (2009).

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