

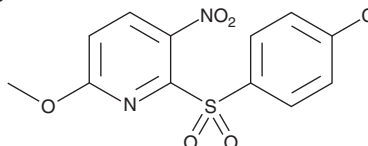
PRODUCT INFORMATION



Thioredoxin Reductase 1 Inhibitor 1

Item No. 31307

CAS Registry No.: 246020-68-8
Formal Name: 2-[(4-chlorophenyl)sulfonyl]-6-methoxy-3-nitro-pyridine
Synonyms: TRi-1, TxnR1 Inhibitor 1, Txnrd1 Inhibitor 1
MF: $C_{12}H_9ClN_2O_5S$
FW: 328.7
Purity: $\geq 98\%$
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

Thioredoxin reductase 1 inhibitor 1 (TRi-1) is supplied as a solid. A stock solution may be made by dissolving the TRi-1 in the solvent of choice, which should be purged with an inert gas. TRi-1 is soluble in DMSO.

Description

TRi-1 is an irreversible inhibitor of thioredoxin reductase 1 (TrxR1; $IC_{50} = 0.012 \mu\text{M}$).¹ It inhibits TrxR1-induced reduction of Trx1 in a cell-free assay ($IC_{50} = 4.3 \mu\text{M}$). TRi-1 ($10 \mu\text{M}$) reduces the mitochondrial oxygen consumption rate in HCT116 colorectal cancer cells. It increases the intracellular levels of hydrogen peroxide in FaDu head and neck squamous cell carcinoma (HNSCC) cells in a time- and concentration-dependent manner. TRi-1 decreases the viability of FaDu cells ($IC_{50} = 0.72 \mu\text{M}$). *In vivo*, TRi-1 (10 mg/kg twice per day) decreases tumor growth in a FaDu HNSCC mouse xenograft model. It induces intratumoral apoptosis in a FaDu HNSCC mouse xenograft model when administered at a dose of 5 mg/kg daily. TRi-7 also is toxic to *S. mansoni* adult worms ($LD_{50} = 10.07 \mu\text{M}$).²

References

- Stafford, W.C., Peng, X., Olofsson, M.H., *et al.* Irreversible inhibition of cytosolic thioredoxin reductase 1 as a mechanistic basis for anticancer therapy. *Sci. Transl. Med.* **10(428)**, eaaf7444 (2018).
- Lyu, H., Petukhov, P.A., Banta, P.R., *et al.* Characterization of lead compounds targeting the selenoprotein thioredoxin glutathione reductase for treatment of schistosomiasis. *ACS Infect. Dis.* **6(3)**, 393-405 (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.

WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 10/27/2023

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