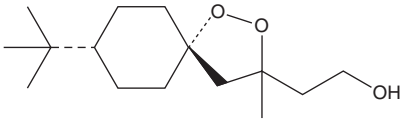
PRODUCT INFORMATION

$FINO_2$

Item No. 25096

CAS Registry No.: 869298-31-7
Formal Name: (5α,8α)-8-(1,1-dimethylethyl)-3-methyl-1,2-dioxaspiro[4.5]decane-3-ethanol
MF: $C_{15}H_{28}O_3$
FW: 256.4
Purity: ≥95%
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

$FINO_2$ is supplied as a solid. A stock solution may be made by dissolving the $FINO_2$ in the solvent of choice. $FINO_2$ is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of $FINO_2$ in these solvents is approximately 30 mg/ml.

$FINO_2$ is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, $FINO_2$ should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. $FINO_2$ has a solubility of approximately 0.3 mg/ml in a 1:2 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

$FINO_2$ is a ferroptosis-inducing peroxide compound that indirectly inhibits glutathione peroxidase 4 (GPX4) and oxidizes iron.[1] It decreases GPX4 activity and protein levels *in vitro* but does not act as an active site, allosteric, or covalent inhibitor of GPX4 or alter GPX homeostasis. It also oxidizes iron *in vitro*, leading to degradation of the endoperoxide moiety, but does not affect the protein levels of iron regulatory proteins, such as IRP2, FTL1, or TFR. $FINO_2$ induces lipid peroxidation of a large subset of the lipidome in HT-1080 cells when used at a concentration of 10 µM and induces ferroptosis in an arachidonic acid lipoxygenase-independent manner. It inhibits cell growth (mean GI_{50} = 5.8 µM) and induces lethality (mean LC_{50} = 46 µM) in the NCI-60 panel of cancer cell lines.[2] It is selective for oncogenically transformed BJ-ELR cells over noncancerous BJ-hTERT cells when used at concentrations of 15 and 20 µM. $FINO_2$ (6 µM) induces oxidative stress, including lipid peroxidation, in RS4;11 B-lymphoblastic leukemia cells. It induces iron-dependent cell death, an effect that can be blocked by pretreatment with the lipophilic antioxidants ferrostatin-1 (Item No. 17729) and liproxstatin-1 (Item No. 17730), and does not induce markers of apoptosis, necrosis, or autophagy in RS4;11 cells.

References

1. Gaschler, M.M., Andia, A.A., Liu, H., *et al.* $FINO_2$ initiates ferroptosis through GPX4 inactivation and iron oxidation. *Nat. Chem. Biol.* **14(5)**, 507-515 (2018).
2. Abrams, R.P., Carroll, W.L., and Woerpel, K.A. Five-membered ring peroxide selectively initiates ferroptosis in cancer cells. *ACS Chem. Biol.* **11(5)**, 1305-1312 (2016).

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