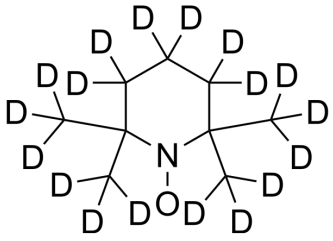
Tempo-d_{18}

Cat. No.:	HY-W001187S
CAS No.:	205679-68-1
Molecular Formula:	$C_9D_{18}NO$
Molecular Weight:	174.36
Target:	DNA/RNA Synthesis; Mitochondrial Metabolism; Reactive Oxygen Species
Pathway:	Cell Cycle/DNA Damage; Metabolic Enzyme/Protease; Immunology/Inflammation; NF-κB
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Tempo-d_{18} is the deuterium labeled Tempo[1]. Tempo is a classic nitroxide radical and is a selective scavenger of ROS that dismutases superoxide in the catalytic cycle. Tempo induces DNA-strand breakage. Tempo can be used as an organocatalyst for the oxidation of primary alcohols to aldehydes. Tempo has mutagenic and antioxidant effects[2][3][4][5].
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]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

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

[2]. Du K, et al. Mitochondria-targeted antioxidant Mito-Tempo protects against acetaminophen hepatotoxicity. Arch Toxicol. 2017 Feb;91(2):761-773.

[3]. Guo X, et al. Comparative Genotoxicity of TEMPO and 3 of Its Derivatives in Mouse Lymphoma Cells. Toxicol Sci. 2018 May 1163(1):214-225.

[4]. Lv H, et al. TEMPO catalyzed oxidative dehydrogenation of hydrazobenzenes to azobenzenes. Org Biomol Chem. 2020 Apr 22.

[5]. Chen X, et al. Isocitrate dehydrogenase 2 contributes to radiation resistance of oesophageal squamous cell carcinoma via regulating mitochondrial function and ROS/pAKT signalling. Br J Cancer. 2020 May 5.

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