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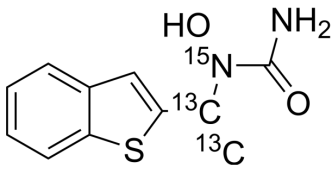
Zileuton-$^{13}C_2$,^{15}N

Cat. No.:	HY-14164S1
Molecular Formula:	$C_9{}^{13}C_2H_8N^{15}NO_2S$
Molecular Weight:	235.24
Target:	Lipoxygenase; Ferroptosis; Isotope-Labeled Compounds
Pathway:	Metabolic Enzyme/Protease; Apoptosis; Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Zileuton-$^{13}C_2$,^{15}N is ^{15}N and ^{13}C labeled Zileuton (HY-14164). Zileuton is a potent and selective inhibitor of 5-lipoxygenase with antiasthmatic properties.
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]. In anti-CD3-treated cells, IL-2 decreases in zileuton-treated and untreated cells with increasing incubation time. Zileuton likely reduces IL-2 levels by inhibiting 5-lipoxygenase, hence leukotriene B4 production, an IL-2 inducer[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	In zileuton (5 mg/kg, p.o.) treated I/R rat, the effect of zileuton to decrease NF-κB expression does not change significantly in the presence of COX inhibitors, and the group reveals significantly lower level of NF-κB staining. Zileuton (5 mg/kg, p.o.) treatment given to I/R rats decreases apoptotic index significantly. Zileuton has no significant effect on increased serum TNF-α levels in I/R group[2]. Zileuton (1,200 mg/kg) inhibits the polyp formation in $APC^{\Delta 468}$ colon and small intestine. Zileuton treatment inhibits the proliferation rates of non epithelial cells in polyps, and increases the apoptosis rates in polyps in rat. There is significant increase in the number of apoptotic cells in the Zileuton-treated cells both in small intestine and in the colon. The reduced proliferation rate may significantly contribute to the reduction of polyposis in both the small intestine and colon of Zileuton-fed $APC^{\Delta 468}$ mice[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Gounaris E, et al. Zileuton, 5-lipoxygenase inhibitor, acts as a chemopreventive agent in intestinal polyposis, by modulating polyp and systemic inflammation. PLoS One. 2015 Mar 6;10(3):e0121402

[2]. Abueid L, et al. Inhibition of 5-lipoxygenase by zileuton in a rat model of myocardial infarction. Anatol J Cardiol. 2016 Nov 10

[3]. Kuvibidila S, et al. Hydroxyurea and Zileuton Differentially Modulate Cell Proliferation and Interleukin-2 Secretion by Murine Spleen Cells: Possible Implication on the Immune Function and Risk of Pain Crisis in Patients with Sickle Cell Disease. Ochsner

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

Caution: Product has not been fully validated for medical applications. For research use only.

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