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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

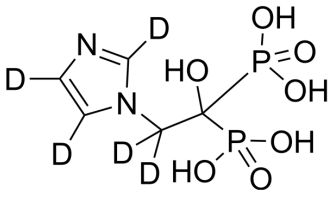
mail@szabo-scandic.com

www.szabo-scandic.com

linkedin.com/company/szaboscandic

Zoledronic acid-d_5

Cat. No.:	HY-13777S
Molecular Formula:	$C_5H_5D_5N_2O_7P_2$
Molecular Weight:	277.12
Target:	Bacterial; Apoptosis; Autophagy; Isotope-Labeled Compounds
Pathway:	Anti-infection; Apoptosis; Autophagy; Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Zoledronic acid-d_5 is deuterated labeled Zoledronic Acid (HY-13777). Zoledronic Acid (Zoledronate) is a third-generation bisphosphonate (BP), with potent anti-resorptive activity. Zoledronic Acid inhibits the differentiation and apoptosis of osteoclasts. Zoledronic Acid also has anti-cancer effects[1].
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]. Zoledronic Acid (0.1-1 μM; 48 hours) increases receptor activator of nuclear factor kB ligand (RANKL) and sclerostin mRNA expressions in osteocyte-like MLO-Y4 cells[3]. Zoledronic Acid increases the expression of osteoclastogenesis supporting factor from MLO-Y4 cells[3]. Zoledronic Acid enhances the RANKL expression via IL-6/ JAK2/STAT3 pathway in MLO-Y4 cells[3]. Zoledronic acid inhibits osteoclast differentiation and function through the regulation of NF-κB and JNK signalling pathways [4]. Zoledronic Acid (10-100 μM; 1-7 days) markedly reduces the viability of MC3T3-E1 cells[5]. Zoledronic Acid (10-100 μM; 1-7 days) induces apoptosis in MC3T3-E1 cells[5]. Zoledronic Acid (10-100 μM; 4 days) inhibits cell viability due to the induction of apoptosis[5]. Zoledronic Acid exerts inhibitory effects on the differentiation and maturation of MC3T3-E1 cells at concentrations <1 μM[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Zoledronic Acid (0.05 mg/kg; i.p.; weekly; for 3 weeks) increases bone mineral density and content[6]. Zoledronic Acid (0.5-1 mg/kg; i.p.; weekly; for 3 weeks) inhibits both osteoclast and osteoblasts function and bone remodeling in vivo interfering with bone mechanical properties[6]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

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Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA