上海源叶生物科技有限公司
Shanghai yuanye Bio-Technology Co., Ltd
电话：021-61312973　　传真：021-55068248
网址：www.shyuanye.com
邮箱：shyysw@sina.com

产品名称：6-乙氧基-2-苯并噻唑磺酰胺
产品别名：Ethoxzolamide；依索唑胺 ；Redupresin; L-643786; PNU-4191

生物活性：

Description	Ethoxzolamide is a carbonic anhydrase inhibitor with Ki of 1 nM.
IC_{50} & Target	Ki: 1 nM (carbonic anhydrase)[1]
In Vitro	Ethoxzolamide (ETZ) treatment causes >90% inhibition of reporter GFP fluorescence in infected macrophages. Moreover, in a 9-day macrophage survival assay, Ethoxzolamide (ETZ) treatment significantly inhibits the ability of M. tuberculosis to grow intracellularly[2].
In Vivo	It is discovered that the lipid-soluble ethoxzolamide is converted in vivo to a water-soluble metabolite, while retaining high activity againstt the enzyme. At the minimal dose for maximal effect (4 mg/kg i.v. at 45 min) the IOP lowering is 4.2 mmHg, the concentration in anterior uvea is 2.5 pmol/kg, and the fractional inhibition of the enzyme (i) is 0.9995. The effect declines rapidly, attributable to the very short half-life of drug in plasma, leading to depletion of free drug in the anterior uvea and other tissues[1]. Ethoxzolamide (ETZ) strongly downregulates GFP reporter fluorescence in mouse lungs, with 3-fold inhibition of GFP signal compare to that in the mock-treating control. There is a significant reduction of bacterial survival in the lungs of ETZ-treating mice compare to the mock-treating control[2].
Solvent&Solubility	***In Vitro:*** **DMSO： 150 mg/mL (580.68 mM;** Need ultrasonic and warming)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.8712 mL	19.3558 mL	38.7117 mL
5 mM	0.7742 mL	3.8712 mL	7.7423 mL
10 mM	0.3871 mL	1.9356 mL	3.8712 mL

*请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液；一旦配成溶液，请分装保存，避免反复冻融造成的产品失效。

储备液的保存方式和期限：-80°C, 6 months; -20°C, 1 month。-80°C 储存时，请在 6 个月内使用，-20°C 储存时，请在 1 个月内使用。

References	[1]. Maren TH, et al. Relations among IOP reduction, ocular disposition and pharmacology of the carbonic anhydrase inhibitor ethoxzolamide. Exp Eye Res. 1992 Jul;55(1):73-9. [2]. Benjamin K. Johnson, et al. The Carbonic Anhydrase Inhibitor Ethoxzolamide Inhibits theMycobacterium tuberculosis PhoPR Regulon and Esx-1 Secretion and Attenuates Virulence. Antimicrob Agents Chemother. 2015 Aug; 59(8): 4436–4445. [3]. Song Gao, et al. Development and validation of an UPLC-MS/MS method for the quantification of ethoxzolamide in plasma and bioequivalent buffers: Applications to absorption, brain distribution, and pharmacokinetic studies. J Chromatogr B Analyt Technol Biomed Life Sci. 2015 Apr 1; 0: 54–59.

实验参考：

Cell Assay	BMDMs are treated with 80 μM Ethoxzolamide (ETZ) or an equivalent volume of DMSO every 2 days for 9 days total. At days 3, 6, and 9, intracellular bacteria are quantified by lysing macrophage monolayers and performing serial dilution plating of lysates on 7H10 agar. For fluorescence

	microscopy experiments, macrophages are seeded on glass coverslips before infection with M. tuberculosis CDC1551. Samples are treated every 2 days with 100 μM Ethoxzolamide (ETZ) or an equal volume of DMSO for 9 days[2].
Animal Administration	Rats (male, 300–325 g) are randomly selected into 2 groups (n=6 each group) and Ethoxzolamide (EZ) is administered at a dose of 0.18 mg/kg (in PEG 300: ethanol, 1:1) via i.v. injection through the tail vein. Blood samples (about 50-100 μL) are collected in heparinizing tubes at 0, 15, 30, 60, 120, 180, 240, 360, 540, and 1440 min post-injection, via tail snip with isoflurane as anesthetic. Plasma samples are prepared and stored at -80 °C until analysis. To study the distribution in brain, rats in group 1 are scarified at 6 hours and rats in group 2 are scarified at 24 hours to collect the brain tissues. Those blood samples from group 2 are analyzed to generated PK profile[3].
References	[1]. Maren TH, et al. Relations among IOP reduction, ocular disposition and pharmacology of the carbonic anhydrase inhibitor ethoxzolamide. Exp Eye Res. 1992 Jul;55(1):73-9. [2]. Benjamin K. Johnson, et al. The Carbonic Anhydrase Inhibitor Ethoxzolamide Inhibits theMycobacterium tuberculosis PhoPR Regulon and Esx-1 Secretion and Attenuates Virulence. Antimicrob Agents Chemother. 2015 Aug; 59(8): 4436–4445. [3]. Song Gao, et al. Development and validation of an UPLC-MS/MS method for the quantification of ethoxzolamide in plasma and bioequivalent buffers: Applications to absorption, brain distribution, and pharmacokinetic studies. J Chromatogr B Analyt Technol Biomed Life Sci. 2015 Apr 1; 0: 54–59.