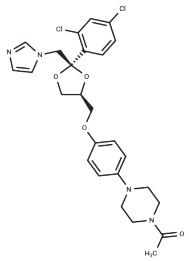
Data Sheet (Cat.No.T0679)

TargetMol

Ketoconazole

Chemical Properties



CAS No. : 65277-42-1

Formula: C26H28Cl2N4O4

Molecular Weight: 531.43

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Ketoconazole (R-41400), a CYP3A4 inhibitor, is an imidazole anti-fungal agent.
Targets(IC50)	Antifungal,Ras,Cytochromes P450,Hydroxylase,NADPH-oxidase
In vitro	Intraperitoneal administration of Ketoconazole (25 mg/kg) in rats significantly reduced plasma corticosterone levels and decreased self-administration of low doses of cocaine. Rats treated with Ketoconazole exhibited enhanced bioavailability of digoxin, increasing from 0.68 to 0.84, with the mean absorption time decreasing from 1.1 h to 0.3 h. Moreover, the oral area under the curve (AUC) for digoxin increased from 63 mg·h/L to 411 mg·h/L, while the intravenous AUC also rose from 93 mg·h/L to 486 mg·h/L.
In vivo	In HT29-S-B6 colorectal cancer cells, Ketoconazole decreased cell proliferation and [3H] thymidine uptake in a dose-dependent manner, with an IC50 of 2.5 mM. Ketoconazole also inhibited [3H]thymidine uptake in both Evsa-T and MDA-MB-231 cell lines, with respective IC50 values of 2 μM and 13 μM. Within 24 hours, Ketoconazole induced a dose-dependent reduction in the S-phase cell population (from 17% to 3%) and a corresponding increase in the Go-G1 phase cell percentage (from 64% to 80%) in HT29-S-B6 cells. By competitively binding with [3H]Dexamethasone, Ketoconazole inhibited fibroblast glucocorticoid receptors, with an IC50 of 0.3 mM. Several Aspergillus species were sensitive to Ketoconazole, with a minimum inhibitory concentration of 0.03 μg/mL.
Kinase Assay	Whole Cell [3H]R1881 Binding Assay: Fibroblasts are grown to confluence in five or six 150 cm2 tissue culture flasks for routine assay. This usually requires 4-6 weeks from the time of the initial seeding of the cell line. All studies are performed between passages 3-20. Two days before assay, the medium is changed to one lacking fetal calf serum. This is repeated again 24 hours before assay. Competition assays are performed with 0.5-1.0 nM [3H]R1881 and increasing amounts of the nonradioactive compounds. Binding to low affinity sites is determined in the presence of 5 × 10-7 M R1881 and is subtracted from whole cell binding of [3H]R 1881 obtained in the absence of any inhibitor to assess binding to 5 high affinity site
Cell Research	HT29-S-B6 cells (5×105) are plated in 35-mm Petri dishes. The next day, the medium is changed and effectors are added in a small volume (10-20 μL). The incubation medium is renewed every day during the experiments. The same triplicate dishes are used for cell counts, [3H]thymidine incorporation, and flow cytometry. [3H]Thymidine (0.5 μCi) is allowed to incorporate for 24 hours; at the end of incubation, cells are rinsed with 1 mL

of medium, detached with 1 mL of trypsin-EDTA, and diluted (1:3) with the culture medium. An aliquot (0.5-1 mL) is used for cell count with a Coulter Counter.(Only for Reference)

Solubility Information

Solubility	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 0.53 mg/mL (1 mM),Solution. DMSO: 5.31 mg/mL (10 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.8817 mL	9.4086 mL	18.8172 mL
5 mM	0.3763 mL	1.8817 mL	3.7634 mL
10 mM	0.1882 mL	0.9409 mL	1.8817 mL
50 mM	0.0376 mL	0.1882 mL	0.3763 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Oliver WR Jr, et al. Proc Natl Acad Sci U S A, 2001, 98(9), 5306-5311.
Yu H, Song M, Hu K, et al. Influence of Bisphenol Compounds at Nanomolar Concentrations on Chromosome Damage Induced by Metabolically Activated Carcinogens in HepG2 Cells. Environmental Science & Technology. 2021
Yu H, Chen Z, Hu K, et al. Potent Clastogenicity of Bisphenol Compounds in Mammalian Cells–Human CYP1A1 Being a Major Activating Enzyme. Environmental Science & Technology. 2020, 54(23): 15267-15276.
Eil C, et al. Horm Metab Res, 1992, 24(8), 367-370.
Forgue-Lafitte ME, et al. Cancer Res, 1992, 52(24), 6827-6831.
Song M, Wang Y, Chen Z, et al. Human CYP enzyme-activated genotoxicity of 2, 2′, 4, 4′-tetrabromobiphenyl ether in mammalian cells. Chemosphere. 2021: 132784.
Gupta AK, et al. Br J Dermatol, 2000, 142(4), 758-765.
Ren L, Li W, Zheng X, et al. Benzimidazoles induce concurrent apoptosis and pyroptosis of human glioblastoma cells via arresting cell cycle. Acta Pharmacologica Sinica. 2021: 1-15.
Xu J, Liu R, Sun F, et al. Eucalyptal D Enhances the Antifungal Effect of Fluconazole on Fluconazole-Resistant Candida albicans by Competitively Inhibiting Efflux Pump. Frontiers in Cellular and Infection Microbiology. 2019, 9
Goeders NE, et al. Drug Alcohol Depend, 1998, 53(1), 67-77.
Xu J, Liu R, Sun F, et al. Eucalyptal D Enhances the Antifungal Effect of Fluconazole on Fluconazole-Resistant Candida albicans by Competitively Inhibiting Efflux Pump[J]. Frontiers in Cellular and Infection Microbiology. 2019, 9.
Zhou L, Tian M, Zhang B, et al.Lysosome targeting fluorescent probe for NAAA imaging and its applications in the drug development for anti-inflammatory.International Journal of Biological Macromolecules.2024: 130307.