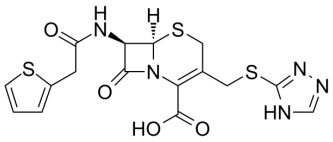
Cefetrizole

Cat. No.:	HY-U00266
CAS No.:	65307-12-2
Molecular Formula:	$C_{16}H_{15}N_5O_4S_3$
Molecular Weight:	437.52
Target:	Glucosidase
Pathway:	Metabolic Enzyme/Protease
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Ceftezole is an α-Glucosidase inhibitor with an IC_{50} and a K_i of 2.1 μM and 0.578 μM, respectively.
IC_{50} & Target	IC50: 2.1 μM (α-Glucosidase)[1] Ki: 0.578 μM (α-Glucosidase)[1]
In Vitro	In in vitro α-Glucosidase assays, Ceftezole is shown to be a reversible, non-competitive inhibitor of yeast α-glucosidase with a K_i value of 5.78×10^{-7} M when the enzyme mixture is pretreated with ceftezole[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Using an in vivo streptozotocin-induced mouse model, blood glucose levels are confirmed to be decreased by 30% 20 min after Ceftezole treatment (10 mg/kg/day). Expression levels of glycogen synthase kinase-3, peroxisome proliferator-activated receptor-γ, and uncoupling protein-3 mRNA are also slightly decreased compare to controls following Ceftezole treatment[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Kinase Assay [1]	Ceftezole at the designated concentrations is added to the enzyme buffer solution and incubated at 30 °C for 1 h, and the substrate is then added to start the enzyme reaction. When pretreatment is not specified, mixtures of substrate and Ceftezole at various concentrations are prepared beforehand and added to the enzyme solution. Enzyme reactions are performed at 30 °C for 30 min, and 3 vol of 1 M sodium carbonate are then added to stop the reaction. The total reaction volume is 100 μL. Enzymatic activity is quantified by measuring the absorbency at 405 nm[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	Diabetes is induced by intravenous STZ injections [30 mg/kg in fresh 10 mM sodium citrate buffer (pH 4.5)] into veins of mice in one diabetic control group and one treatment group. Diabetic female mice are identified as those having blood glucose levels >250 mg/dL using a kit. Ceftezole or vehicle (distilled water) is given intraperitoneally (30 mg/kg/day) every day for 14 days. Twenty-four hours after the final Ceftezole treatment, mice are anesthetized with pure diethylether inhalation, and blood analysis is carried out[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Lee DS, et al. Ceftezole, a cephem antibiotic, is an alpha-glucosidase inhibitor with in vivo anti-diabetic activity. Int J Mol Med. 2007 Sep;20(3):379-83.

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