# Product Data Sheet

Product Name: Cefetrizole
Cat. No.: GC31580

## Chemical Properties

| | | | |
|---|---|---|---|
| Cas. No. | 65307-12-2 | | |
| SMILES | OC(C1=C(CSC2=NN=CN2)CS[C@@]([C@@H]3NC(CC4=CC=CS4)=O)([H])N1C3=O)=O | | |
| Formula | $C_{16}H_{15}N_5O_4S_3$ | M.Wt | 437.52 |
| Solubility | Soluble in DMSO | Storage | Store at -20°C |
| General tips | For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months. | | |
| Shipping Condition | Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request. | | |
| Structure | Cefetrizole | | |

## Protocol

**Kinase experiment:**

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].


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**Animal experiment:**

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].

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.

### Background

Ceftezole is an α-Glucosidase inhibitor with an IC50 and a Ki of 2.1 μM and 0.578 μM, respectively.

In in vitro α-Glucosidase assays, Ceftezole is shown to be a reversible, non-competitive inhibitor of yeast α-glucosidase with a Ki value of 5.78×10-7 M when the enzyme mixture is pretreated with ceftezole[1].

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


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receptor-γ, and uncoupling protein-3 mRNA are also slightly decreased compare to controls following Ceftezole treatment[1].

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