J Enzyme Inhib. 2000;15(5):429-41.

N3-oxoacyl derivatives of L-2,3-diaminopropanoic acid and their peptides; novel inhibitors of glucosamine-6-phosphate synthase.

Andruszkiewicz R, Jedrzejczak R, Zieniawa T, Wojciechowski M, Borowski E.

Department of Pharmaceutical Technology and Biochemistry, Technical University of Gdańsk, Poland.

Abstract

Novel inhibitors 1-4 of glucosamine-6-phosphate synthase from Candida albicans have been designed based on acylation of the N3 amino group of L-2,3-diaminopropanoic acid with the corresponding ketoacids. These inhibitors have been shown to alkylate the fungal enzyme in a time-dependent manner. Compound 3 containing trans-beta-benzoyl acrylic acid as an acyl residue was found to be the most potent inhibitor in the series. Dipeptides composed of the active inhibitors and norvaline demonstrated potent antifungal activity against selected strains of Candida spp. and Saccharomyces cerevisiae. Their activity was reversed upon addition of N-acetylglucosamine to the medium.

PMID: 11030083 [PubMed - indexed for MEDLINE]