Product Data Sheet

Chemical Properties

**Product Name:** Daminozide  
**Cas No.:** 1596-84-5  
**M.Wt:** 160.17  
**Formula:** C6H12N2O3  
**Synonyms:** Alar;B 995;DMASA;SADH;Succinic Acid; Aminozide;Kylar;DIMG

**Chemical Name:** 4-(2,2-dimethylhydrazinyl)-4-oxobutanoic acid  
**Canonical SMILES:** CN(C)NC(=O)CCC(=O)O  
**Solubility:** >7.3mg/mL in DMSO  
**Storage:** Store at -20°C  
**General tips:** For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

**Shopping Condition:** Evaluation sample solution: ship with blue ice  
All other available size: ship with RT, or blue ice upon request

Biological Activity

**Targets:** DNA Damage/DNA Repair  
**Pathways:** HDAC  
**Description:** Daminozide, a plant growth regulator, selectively inhibits the KDM2A with IC50 value of 1.5 μM, PHF8 with IC50 value of 0.55 μM, KDM7A with IC50 value of 2 μM.[1] FBXL11/KDM2A is a histone H3 lysine 36 demethylase enzyme which enzymatic activity relies on
a conserved JmjC domain in the N-terminus of the protein that coordinates iron and alphaketoglutarate to catalyze demethylation via a hydroxylation based mechanism.[2] The ZF-CxxC DNA binding domain within FBXL11/KDM2A has the capacity to interact with non-methylated DNA and can target to CpG island regions of the genome where it specifically removes histone H3 lysine 36 methylation.[3] This mechanism acts to create a chromatin environment at CpG islands that highlights these regulatory elements and differentiates them from non-regulatory regions in large complex mammalian genomes. In a study in mouse hepatocytes, this gene was shown to regulate hepatic gluconeogenesis.[4] Histone Ne-methyl lysine demethylases KDM2/7 have been identified as potential targets for cancer therapies. Lung cancer is the leading cause of cancer deaths in the United States and worldwide. Non–small cell lung cancer (NSCLC) accounts for about 85% of all lung cancer cases, and its molecular etiology is heterogeneous[5]. Klaus W. et al [6] found that KDM2A overexpression in NSCLC cells increased cell proliferation and invasiveness. And KDM2A knockdown abrogated tumor growth and invasive abilities of NSCLC cells in mouse xenograft models, suggesting that KDM2A may be a promising therapeutic target in NSCLC. Daminozide, as a KDM2A selective inhibitor, was once widely used as a plant growth retardant but now will be a potent approach to targeted therapies for NSCLC.[7]

Reference:
recommendations on the product data sheet.