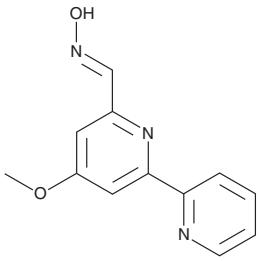
PRODUCT INFORMATION

Caerulomycin A

Item No. 27625

CAS Registry No.:	21802-37-9
Formal Name:	(E)-4-methoxy-[2,2'-bipyridine]-6-carboxaldehyde oxime
MF:	$C_{12}H_{11}N_3O_2$
FW:	229.2
Purity:	≥98%
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Bacterium/*Streptomyces* sp.



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Caerulomycin A is supplied as a solid. A stock solution may be made by dissolving the caerulomycin A in the solvent of choice, which should be purged with an inert gas. Caerulomycin A is soluble in organic solvents such as ethanol, methanol, DMSO, and dimethyl formamide.

Caerulomycin A is sparingly soluble in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

Description

Caerulomycin A is an fungal metabolite originally isolated from *Actinoalloteichus* with antifungal and immunosuppressant activites.[1-4] It inhibits the growth of *C. albicans*, *C. glabrata*, and *C. krusei* (MICs = 0.78-1.56, 0.39-0.78, and 0.78-1.56 µg/ml, respectively).[1] Caerulomycin A induces expansion of $CD4^+Foxp3^+$ regulatory T cells (Tregs) and decreases the number of Th1 and T17 cells *in vitro via* increased TGF-β-mediated Smad3 activity and reduces IFN-γ-induced STAT1 signaling.[2] *In vivo*, caerulomycin A (10 mg/kg) reduces IL-6, TNF-α, and IFN-γ production, inflammation, and synovitis in a mouse model of collagen-induced arthritis. Caerulomycin A suppresses the differentiation of Th2 cells and reduces levels of IL-4, IL-5, IL-13, and IgE and eosinophil lung infiltration in a mouse model of ovalbumin-induced asthma.[3] It also increases production of Tregs, reduces production of Th1, Th17, and CD8 T cells, and reduces disease severity in a mouse model of experimental autoimmune encephalomyelitis (EAE).[4]

References

1. Ambavane, V., Tokdar, P., Parab, R., *et al.* Caerulomycin A - An antifungal compound isolated from marine actinomycetes. *Adv. Microbiol.* **4(9),** 567-578 (2014).
2. Gurram, R.K., Kujur, W., Maurya, S.K., *et al.* Caerulomycin A enhances transforming growth factor-β (TGF-β)-Smad3 protein signaling by suppressing interferon-γ (IFN-γ)-signal transducer and activator of transcription 1 (STAT1) protein signaling to expand regulatory T cells (Tregs). *J. Biol. Chem.* **289(25),** 17515-17528 (2014).
3. Kujur, W., Gurram, R.K., Haleem, N., *et al.* Caerulomycin A inhibits Th2 cell activity: A possible role in the management of asthma. *Sci. Rep.* **5**, 15396 (2015).
4. Kujur, W., Gurram, R.K., Maurya, S.K., *et al.* Caerulomycin A suppresses the differentiation of naïve T cells and alleviates the symptoms of experimental autoimmune encephalomyelitis. *Autoimmunity* **50(5),** 317-328 (2017).

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