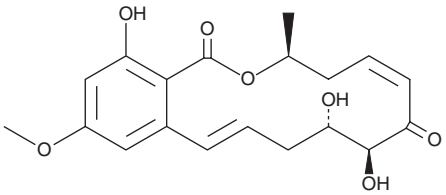
PRODUCT INFORMATION

(5Z)-7-Oxozeaenol

Item No. 17459

CAS Registry No.:	253863-19-3
Formal Name:	(3S,5Z,8S,9S,11E)-3,4,9,10-tetrahydro-8,9,16-trihydroxy-14-methoxy-3-methyl-1H-2-benzoxacyclotetradecin-1,7(8H)-dione
Synonyms:	FR148083, L-783,279, LL-Z 1640-2
MF:	$C_{19}H_{22}O_7$
FW:	362.4
Purity:	≥99%
UV/Vis.:	λ_{max}: 232, 273, 317 nm
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Fungus/*Curvularia* sp.



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

Laboratory Procedures

(5Z)-7-Oxozeaenol is supplied as a solid. A stock solution may be made by dissolving the (5Z)-7-oxozeaenol in the solvent of choice, which should be purged with an inert gas. (5Z)-7-Oxozeaenol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of (5Z)-7-oxozeaenol in ethanol is approximately 1 mg/ml and approximately 30 mg/ml in DMSO and DMF.

(5Z)-7-Oxozeaenol is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, (5Z)-7-oxozeaenol should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. (5Z)-7-Oxozeaenol has a solubility of approximately 0.05 mg/ml in a 1:20 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

(5Z)-7-Oxozeaenol is a resorcylic acid lactone fungal metabolite and an inhibitor of TGF-β activated kinase 1 (TAK1; IC_{50} = 8.1 nM in the presence of TAK1-binding protein 1 (TAB1)).[1] It is selective for TAK1 over MEK1 and MEKK1 (IC_{50}s = 411 and 268 nM, respectively), as well as apoptosis signal-regulating kinase 1 (ASK1) and IκB kinase β (IKKβ) at 300 nM. (5Z)-7-Oxozeaenol inhibits NF-κB activity in a reporter assay using HEK293 cells expressing TAK1 and TAB1 (IC_{50} = 83 nM) and reduces IL-1-induced increases in COX-2 levels in mouse embryonic fibroblasts (MEFs). It sensitizes HeLa cells to apoptosis induced by TNF-related apoptosis-inducing ligand (TRAIL) when used at a concentration of 300 nM and induces necroptosis when used in combination with TNF and zVAD in primary mouse bone marrow-derived macrophages (BMDMs) at 100 nM.[2,3] Topical application of (5Z)-7-oxozeaenol (10 µl of a 1 mg/ml solution) prevents picryl chloride-induced increases in ear thickness in mice.[1]

References

1. Ninomiya-Tsuji, J., Kajino, T., Ono, K., *et al.* A resorcylic acid lactone, 5Z-7-oxozeaenol, prevents inflammation by inhibiting the catalytic activity of TAK1 MAPK kinase kinase. *J. Biol. Chem.* **278(20)**, 18485-18490 (2003).
2. Choo, M.-K., Kawasaki, N., Singhirunnusorn, P., *et al.* Blockade of transforming growth factor-β-activated kinase 1 activity enhances TRAIL-induced apoptosis through activation of a caspase cascade. *Mol. Cancer Ther.* **5(12)**, 2970-2976 (2006).
3. Place, D.E., Samir, P., Malireddi, R.K.S., *et al.* Integrated stress response restricts macrophage necroptosis. *Life Sci. Alliance* **5(1)**, e202101260 (2021).

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