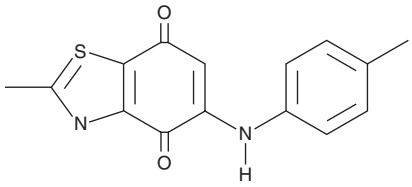
PRODUCT INFORMATION

Ryuvidine

Item No. 16614

CAS Registry No.:	265312-55-8
Formal Name:	2-methyl-5-[(4-methylphenyl)amino]-4,7-benzothiazoledione
Synonyms:	Cdk4 Inhibitor III, Cyclic-dependent Kinase 4 Inhibitor III, SPS812
MF:	$C_{15}H_{12}N_2O_2S$
FW:	284.3
Purity:	≥95%
UV/Vis.:	λ_{max}: 253, 531 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



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

Laboratory Procedures

Ryuvidine is supplied as a crystalline solid. A stock solution may be made by dissolving the ryuvidine in the solvent of choice. Ryuvidine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of ryuvidine in these solvents is approximately 0.5, 2, and 5 mg/ml, respectively.

Ryuvidine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, ryuvidine should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Ryuvidine has a solubility of approximately 0.2 mg/ml in a 1:4 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

SET domain-containing protein 8 (SETD8) is a methyltransferase that selectively monomethylates histone H4 at lysine residue 20 (H4K20), an event proven to have an important role in chromatin structure and transcriptional activation. It is also a regulator of p53, mono-methylating lysine 382 of the tumor suppressor. Ryuvidine is an inhibitor of SETD8 (IC_{50} = 0.5 µM) that suppresses monomethylation of H4K20 *in vitro*.[1] It less potently inhibits cyclin-dependent kinase 4 (Cdk4; IC_{50} = 6 µM for Cdk4/cyclin D1).[2] Over several hours of treatment, ryuvidine suppresses the expression of cell division cycle 7-related kinase (Cdc7), resulting in an ATM-dependent checkpoint response and arrest of cell cycling in S phase.[1,3]

References

1. Blum, G., Ibáñez, G., Rao, X., *et al.* Small-molecule inhibitors of SETD8 with cellular activity. *ACS Chem. Biol.* **9(11)**, 2471-2478 (2014).
2. Ryu, C.K., Kang, H.Y., Lee, S.K., *et al.* 5-Arylamino-2-methyl-4,7-dioxobenzothiazoles as inhibitors of cyclin-dependent kinase 4 and cytotoxic agents. *Bioorg. Med. Chem. Lett.* **10(5)**, 461-464 (2000).
3. FitzGerald, J., Murillo, L.S., O'Brien, G., *et al.* A high through-put screen for small molecules modulating MCM2 phosphorylation identifies Ryuvidine as an inducer of the DNA damage response. *PLoS One* **9(6)**, (2014).

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