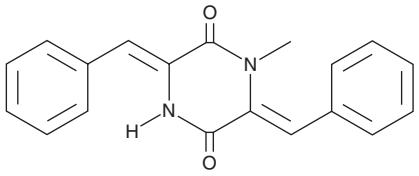
PRODUCT INFORMATION

Piperafizine A

Item No. 19449

CAS Registry No.:	130603-59-7
Formal Name:	1-methyl-3Z,6Z-*bis*(phenylmethylene)-2,5-piperazinedione
MF:	C19H16N2O2
FW:	304.3
Purity:	≥95%
Supplied as:	A 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

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

Piperafizine A is slightly 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

Piperafizine A is a natural methylated diketopiperazine first isolated from an actinomycete, *Streptoverticillium*.[1] It potentiates the cytotoxicity of vincristine (Item No. 11764), an anti-cancer alkaloid known to be exported from cells by P-glycoprotein.[1,2] Piperafizine A directs the intracellular accumulation of vincristine in cancer cells to a similar degree as verapamil (Item No. 14288), a P-glycoprotein inhibitor.[3,4] The effects of piperafizine A on vincristine accumulation in cancer cells is dose-dependent over a range of 1 to 20 µg/ml.[3]

References

1. Kamei, H., Oka, M., Hamagishi, Y., *et al.* Piperafizines A and B, potentiators of cytotoxicity of vincristine. *J. Antibiot. (Tokyo)* **43(8)**, 1018-1020 (1990).
2. van Tellingen, O., Buckle, T., Jonker, J.W., *et al.* P-glycoprotein and Mrp1 collectively protect the bone marrow from vincristine-induced toxicity *in vivo*. *Br. J. Cancer* **89(9)**, 1776-1782 (2003).
3. Ogasawara, M., Hasegawa, M., Hamagishi, Y., *et al*. Potentiation of vincristine cytotoxicity by rubiginone B1 and piperafizine A in human Moser and K562 cells—mode of action. *J. Antibiot. (Tokyo)* **45(1)**, 129-132 (1992).
4. Chan, H.S.L., Haddad, G., Thorner, P.S., *et al.* P-glycoprotein expression as a predictor of the outcome of therapy for neuroblastoma. *N. Engl. J. Med.* **325(23)**, 1608-1614 (1991).

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