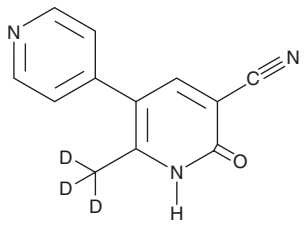
PRODUCT INFORMATION

Milrinone-d_3

Item No. 25429

CAS Registry No.: 2749393-50-6
Formal Name: 1,6-dihydro-2-methyl-d_3-6-oxo-[3,4'-bipyridine]-5-carbonitrile
MF: $C_{12}H_6D_3N_3O$
FW: 214.2
Chemical Purity: ≥98% (Milrinone)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_3); ≤1% d_0
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

Milrinone-d_3 is intended for use as an internal standard for the quantification of milrinone (Item No. 13357) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Milrinone-d_3 is supplied as a solid. A stock solution may be made by dissolving the milrinone-d_3 in the solvent of choice. Milrinone-d_3 is soluble in organic solvents such as DMSO and dimethyl formamide, which should be purged with an inert gas. The solubility of milrinone-d_3 in these solvents is approximately 0.5 and 0.3 mg/ml, respectively.

Description

Milrinone is an inhibitor of type 3 phosphodiesterases (PDEs), inhibiting recombinant PDE3A and PDE3B with IC_{50} values of 0.45 and 1 µM, respectively.[1] It is selective for PDE3 over PDE1, PDE2, PDE4, PDE5, and PDE7 (IC_{50}s = 263, >300, 17.5, 49.1, and 58.3 µM, respectively).[1] Milrinone (0.1-1 mg/kg) has positive inotropic effects, increasing cardiac contractile force in anesthetized dogs with a concomitant increase in heart rate but not blood pressure.[2] It also increases contractile force in models of propranolol- and verapamil-induced heart failure in anesthetized dogs when administered at an initial dose of 30 µg/kg followed by a continuous 3 µg/kg per minute infusion. Milrinone has vasodilatory effects as well, decreasing mean aortic pressure and increasing venous compliance in anesthetized dogs when administered at an initial dose of 10 µg/kg followed by a continuous 1.7-2.4 µg/kg per minute infusion.[3] Formulations containing milrinone have been used in the treatment of heart failure.

References

1. Sudo, T., Tachibana, K., Toga, K., *et al.* Potent effects of novel anti-platelet aggregatory cilostamide analogues on recombinant cyclic nucleotide phophodiesterase isozyme activity. *Biochem. Pharmacol.* **59(4)**, 347-356 (2000).
2. Alousi, A.A., Canter, J.M., Montenaro, M.J., *et al.* Cardiotonic activity of milrinone, a new and potent cardiac bipyridine, on the normal and failing heart of experimental animals. *J. Cardiovasc. Pharmacol.* **5(5)**, 792-803 (1983).
3. Lee, R.W., Gay, R.G., Lancaster, L.D., *et al.* Dog model to study the effects of pharmacologic agents on the peripheral circulation: Effects of milrinone. *J. Pharmacol. Exp. Ther.* **240(3)**, 1014-1019 (1987).

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