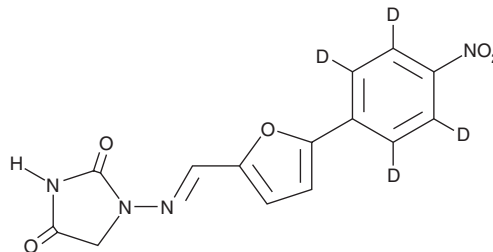


PRODUCT INFORMATION



Dantrolene-d₄ Item No. 29451

CAS Registry No.: 2749234-17-9
Formal Name: 1-[[[5-(4-nitrophenyl-2,3,5,6-d₄)-2-furanyl]methylene]amino]-2,4-imidazolidinedione
MF: C₁₄H₆D₄N₄O₅
FW: 318.3
Chemical Purity: ≥98% (Dantrolene)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₄); ≤1% d₀
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

Dantrolene-d₄ is intended for use as an internal standard for the quantification of dantrolene (Item No. 14326) 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).

Dantrolene-d₄ is supplied as a solid. A stock solution may be made by dissolving the dantrolene-d₄ in the solvent of choice, which should be purged with an inert gas. Dantrolene-d₄ is soluble in DMSO.

Description

Dantrolene is an inhibitor of calcium release from the sarcoplasmic reticulum (IC₅₀ = 0.3 μM).¹ It binds to sarcoplasmic reticulum vesicles isolated from normal and malignant hyperthermia-susceptible (MHS) pigs with K_d values of 0.3 and 0.09 μM, respectively. Dantrolene reduces spontaneous calcium wave frequency and amplitude in the presence of calmodulin in isolated mouse cardiomyocytes with IC₅₀ values of 0.42 and 0.19 μM, respectively.² It reduces the magnitude of electrically stimulated twitch tensions in isolated rat extensor digitorum longus and soleus muscles (IC₅₀ = 3 μg/ml) and MHS pigs (ED₅₀ = 0.85 mg/kg).^{3,4} Formulations containing dantrolene have been used in the treatment of malignant hyperthermia.

References

1. Kobayashi, S., Yano, M., Suetomi, T., *et al.* Dantrolene, a therapeutic agent for malignant hyperthermia, markedly improves the function of failing cardiomyocytes by stabilizing interdomain interactions within the ryanodine receptor. *J. Am. Coll. Cardiol.* **53(21)**, 1993-2005 (2009).
2. Y.W., Gomez-Hurtado, N., Walweel, K., *et al.* Essential role of calmodulin in RyR inhibition by dantrolene. *Mol. Pharmacol.* **88(1)**, 57-63 (2015).
3. Kotsias, B.A. and Muchnik, S. Reversible effect of dantrolene sodium on twitch tension of rat skeletal muscle. *Arch. Neurol.* **35(4)**, 234-236 (1978).
4. Nelson, T.E. and Flewellen, E.H. Rationale for dantrolene vs. procainamide for treatment of malignant hyperthermia. *Anesthesiology* **50(2)**, 118-122 (1979).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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