

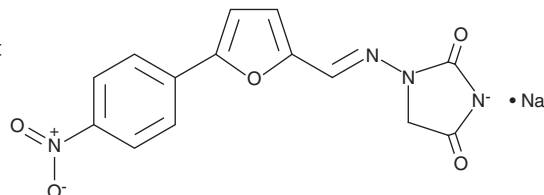
PRODUCT INFORMATION



Dantrolene (sodium salt)

Item No. 14326

CAS Registry No.: 14663-23-1
Formal Name: 1-[[[5-(4-nitrophenyl)-2-furanyl]methylene]amino]-2,4-imidazolidinedione, monosodium salt
MF: C₁₄H₉N₄O₅ • Na
FW: 336.2
Purity: ≥98%
UV/Vis.: λ_{max}: 226, 309, 348, 387 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

Dantrolene (sodium salt) is supplied as a crystalline solid. A stock solution may be made by dissolving the dantrolene (sodium salt) in the solvent of choice, which should be purged with an inert gas. Dantrolene (sodium salt) is soluble in organic solvents such as DMSO and dimethyl formamide (DMF). The solubility of dantrolene (sodium salt) in these solvents is approximately 2 and 10 mg/ml, respectively.

Dantrolene (sodium salt) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, dantrolene (sodium salt) should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Dantrolene (sodium salt) has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

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. Oo, 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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