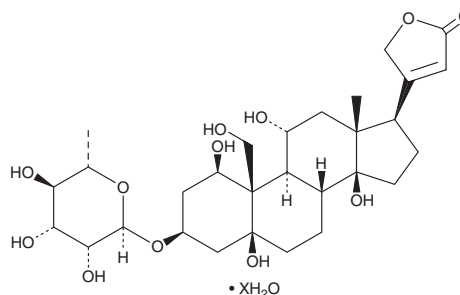


# PRODUCT INFORMATION

## Ouabain (hydrate)

Item No. 14319

**CAS Registry No.:** 340169-01-9  
**Formal Name:** 3β-[[6-deoxy-α-L-mannopyranosyl]oxy]-1β,5β,11α,14,19-pentahydroxy-card-20(22)-enolide, hydrate  
**Synonym:** g-Strophanthin  
**MF:** C<sub>29</sub>H<sub>44</sub>O<sub>12</sub> • XH<sub>2</sub>O  
**FW:** 584.7  
**Purity:** ≥98%  
**Supplied as:** A solid  
**Storage:** -20°C  
**Stability:** ≥4 years  
**Item Origin:** Synthetic



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

### Laboratory Procedures

Ouabain (hydrate) is supplied as a solid. A stock solution may be made by dissolving the ouabain (hydrate) in the solvent of choice, which should be purged with an inert gas. Ouabain (hydrate) is soluble in methanol.

### Description

Ouabain is a cardiac glycoside that has been found in *S. gratus* and has diverse biological activities.<sup>1-7</sup> It inhibits the Na<sup>+</sup>/K<sup>+</sup>-ATPase isoforms α1β1 and α2β1 and human-ether-a-go-go (hERG), also known as K<sub>v</sub>11.1 (IC<sub>50</sub>s = 97, 90, and 15.2 nM, respectively).<sup>2,3</sup> Ouabain reduces the proliferation of PC3 prostate cancer and U937 lymphoma cells (EC<sub>50</sub>s = 210 and 94 nM, respectively).<sup>4</sup> It inhibits the cytopathic effect of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in infected Vero cells (IC<sub>50</sub> = <0.097 μM).<sup>5</sup> Ouabain (~8 μg/animal) increases systolic blood pressure in normotensive rats.<sup>6</sup> It has been used to induce ventricular arrhythmias *in vivo*.<sup>7</sup> Formulations containing ouabain have been used in the treatment of atrial fibrillation, atrial flutter, and heart failure.

### References

1. Jacobs, W.A. and Bigelow, N.M. Ouabain or g-strophanthin. *J. Biol. Chem.* **96(3)**, 647-658 (1932).
2. Katx, A., Tal, D.M., Heller, D., *et al.* Digoxin derivatives with enhanced selectivity for the α2 isoform of Na,K-ATPase: Effects on intraocular pressure in rabbits. *J. Biol. Chem.* **289(30)**, 21153-21162 (2014).
3. Wang, L., Wible, B.A., Wan, X., *et al.* Cardiac glycosides as novel inhibitors of human ether-a-go-go-related gene channel trafficking. *J. Pharmacol. Exp. Ther.* **320(2)**, 525-534 (2007).
4. Bloise, E., Braca, A., De Tommasi, N., *et al.* Pro-apoptotic and cytostatic activity of naturally occurring cardenolides. *Cancer Chemother. Pharmacol.* **64(4)**, 793-802 (2009).
5. Jeon, S., Ko, M., Lee, J., *et al.* Identification of antiviral drug candidates against SARS-CoV-2 from FDA-approved drugs. *Antimicrob. Agents Chemother.* **64(7)**, e00819-20 (2020).
6. Xavier, F.E., Rossoni, L.V., Alonso, M.J., *et al.* Ouabain-induced hypertension alters the participation of endothelial factors in α-adrenergic responses differently in rat resistance and conductance mesenteric arteries. *Br. J. Pharmacol.* **143(1)**, 215-225 (2004).
7. Xue, Y.X., Aye, N.N., and Hashimoto, K. Antiarrhythmic effects of HOE642, a novel Na<sup>+</sup>-H<sup>+</sup> exchange inhibitor, on ventricular arrhythmias in animal hearts. *Eur. J. Pharmacol.* **317(2-3)**, 309-316 (1996).

#### 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.

#### WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 02/29/2024

#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897

[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM