



# SZABO SCANDIC

Part of Europa Biosite

## Produktinformation



Forschungsprodukte & Biochemikalien



Zellkultur & Verbrauchsmaterial



Diagnostik & molekulare Diagnostik



Laborgeräte & Service

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### Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

### SZABO-SCANDIC HandelsgmbH

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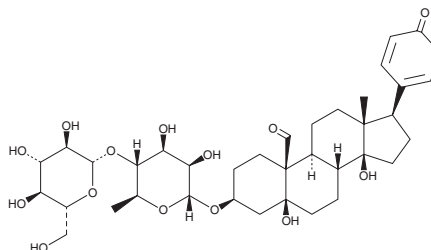
# PRODUCT INFORMATION



## Hellebrin

Item No. 21442

**CAS Registry No.:** 13289-18-4  
**Formal Name:** 3β-[[6-deoxy-4-O-β-D-glucopyranosyl-α-L-mannopyranosyl)oxy]-5β,14-dihydroxy-19-oxo-bufa-20,22-dienolide  
**Synonym:** NSC 93134  
**MF:** C<sub>36</sub>H<sub>52</sub>O<sub>15</sub>  
**FW:** 724.8  
**Purity:** ≥99%  
**Supplied as:** A solid  
**Storage:** -20°C  
**Stability:** ≥2 years  
**Special Conditions:** Light sensitive



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

### Laboratory Procedures

Hellebrin is supplied as a solid. A stock solution may be made by dissolving the hellebrin in water. The solubility of hellebrin in water is approximately 4 mg/ml. We do not recommend storing the aqueous solution for more than one day.

### Description

Hellebrin is a cardiac glycoside that potently inhibits the Na<sup>+</sup>/K<sup>+</sup>-ATPase by binding to it and blocking its non-canonical function as a receptor for cardiac glycosides.<sup>1,2</sup> Hellebrin has a higher affinity for the α<sub>1</sub>β<sub>1</sub> subunit of the Na<sup>+</sup>/K<sup>+</sup>-ATPase than the α<sub>2</sub>β<sub>1</sub> or α<sub>3</sub>β<sub>1</sub> complexes, in contrast to other cardiac glycosides.<sup>1</sup> This affinity for the α<sub>1</sub>β<sub>1</sub> complex correlates with its cancer cell growth inhibition (GI<sub>50</sub> = 6-58 nM in various human cancer cell lines). Hellebrin also induces caspase-dependent apoptosis in Jurkat T cells.<sup>3</sup>

### References

1. Moreno, Y.B.L., Katz, A., Miklos, W., *et al.* Hellebrin and its aglycone form hellebrigenin display similar *in vitro* growth inhibitory effects in cancer cells and binding profiles to the alpha subunits of the Na<sup>+</sup>/K<sup>+</sup>-ATPase. *Mol. Cancer* **12**, 1-14 (2013).
2. Ogawa, H., Shinoda, T., Cornelius, F., *et al.* Crystal structure of the sodium-potassium pump (Na<sup>+</sup>,K<sup>+</sup>-ATPase) with bound potassium and ouabain. *Proc. Natl. Acad. Sci. USA* **106(33)**, 13742-13747 (2009).
3. Daniel, D., Süsal, C., Kopp, B., *et al.* Apoptosis-mediated selective killing of malignant cells by cardiac steroids: Maintenance of cytotoxicity and loss of cardiac activity of chemically modified derivatives. *Int. Immunopharmacol.* **3**, 1791-1801 (2003).

#### 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

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