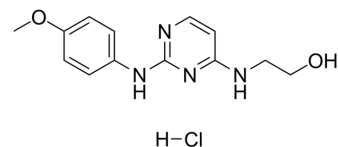


## Cardiogenol C hydrochloride

Cat. No.:	HY-12319A
CAS No.:	1049741-55-0
Molecular Formula:	C <sub>13</sub> H <sub>17</sub> ClN <sub>4</sub> O <sub>2</sub>
Molecular Weight:	296.75
Target:	β-catenin; Wnt
Pathway:	Stem Cell/Wnt
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 59 mg/mL (198.82 mM)  
 H<sub>2</sub>O : 2 mg/mL (6.74 mM; Need ultrasonic)  
 \* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass	1 mg	5 mg	10 mg
	1 mM		3.3698 mL	16.8492 mL	33.6984 mL
	5 mM		0.6740 mL	3.3698 mL	6.7397 mL
	10 mM		0.3370 mL	1.6849 mL	3.3698 mL

Please refer to the solubility information to select the appropriate solvent.

#### In Vivo

- Add each solvent one by one: PBS  
Solubility: 3.33 mg/mL (11.22 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: 2.5 mg/mL (8.42 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.5 mg/mL (8.42 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.5 mg/mL (8.42 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Cardiogenol C hydrochloride is a potent cell-permeable pyrimidine inducer which prompts the differentiation of ESCs into cardiomyocytes (EC<sub>50</sub>=100 nM)<sup>[1]</sup>. Cardiogenol C hydrochloride also acts cardiomyogenic on already lineage-committed progenitor cell types with a limited degree of plasticity. Cardiogenol C hydrochloride is a useful cardiomyogenic agent and can be used as a tool to improve cardiac repair by cell transplantation therapy in animal models<sup>[2]</sup>.

<b>IC<sub>50</sub> &amp; Target</b>	EC50: 100 nM (differentiation of ESCs into cardiomyocytes) <sup>[1]</sup>																								
<b>In Vitro</b>	<p>Cardiogenol C hydrochloride (1 μM; 7 days) has a cardiomyogenic effect on P19 cells, it significantly increases atrial natriuretic factor (ANF, nppa) in P19 cells when it compares to untreated control cells<sup>[1]</sup>.</p> <p>Cardiogenol C hydrochloride (0.01-100 μM; 7 days) significantly increases ANF expression. In addition, another frequently used cardiac marker gene (NKX2-5) is also significantly increased by this small molecule in C2C12 cells<sup>[2]</sup>.</p> <p>Cardiogenol C hydrochloride (0.001-100 μM; 7 days) increases cardiac Nav1.5 sodium channel protein expression as dose-dependent manner in C2C12 cells<sup>[2]</sup>.</p> <p>Cardiogenol C hydrochloride (1 μM; 35 days) addition from day 0 significantly increases myocardial differentiation and results in a significantly increased percentage of CBs with beating cardiomyocytes. This small molecule promotes the development of beating cardiomyocytes in cardiovascular progenitor cell-derived cardiac bodies<sup>[2]</sup>.</p> <p>Cardiogenol C hydrochloride (0.01-100 μM; 7 days) does not effect cell growth even at 10 μM. In addition, Cardiogenol C either solves in water or DMSO generates a similar effect. The highest concentration, 100 μM has significant cellular toxicity on C2C12 cells<sup>[2]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>RT-PCR<sup>[2]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>C2C12 cells</td> </tr> <tr> <td>Concentration:</td> <td>0.01 μM; 0.1 μM; 1 μM; 3 μM; 10 μM; 30 μM; 100 μM</td> </tr> <tr> <td>Incubation Time:</td> <td>7 days</td> </tr> <tr> <td>Result:</td> <td>Increased ANF and NKX2.5 mRNA level as a dose-dependent manner.</td> </tr> </table> <p>Western Blot Analysis<sup>[2]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>C2C12 cells</td> </tr> <tr> <td>Concentration:</td> <td>0.001 μM; 0.01 μM; 0.1 μM; 1 μM; 10 μM</td> </tr> <tr> <td>Incubation Time:</td> <td>7 days</td> </tr> <tr> <td>Result:</td> <td>Increased cardiac Nav1.5 sodium channel protein levels.</td> </tr> </table> <p>Cell Proliferation Assay<sup>[2]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>C2C12 cells</td> </tr> <tr> <td>Concentration:</td> <td>0.01 μM; 0.1 μM; 1 μM</td> </tr> <tr> <td>Incubation Time:</td> <td>7 days</td> </tr> <tr> <td>Result:</td> <td>Did not exert toxic effects on C2C12 cells at 0.01-10 μM treatment.</td> </tr> </table>	Cell Line:	C2C12 cells	Concentration:	0.01 μM; 0.1 μM; 1 μM; 3 μM; 10 μM; 30 μM; 100 μM	Incubation Time:	7 days	Result:	Increased ANF and NKX2.5 mRNA level as a dose-dependent manner.	Cell Line:	C2C12 cells	Concentration:	0.001 μM; 0.01 μM; 0.1 μM; 1 μM; 10 μM	Incubation Time:	7 days	Result:	Increased cardiac Nav1.5 sodium channel protein levels.	Cell Line:	C2C12 cells	Concentration:	0.01 μM; 0.1 μM; 1 μM	Incubation Time:	7 days	Result:	Did not exert toxic effects on C2C12 cells at 0.01-10 μM treatment.
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## REFERENCES

[1]. Wu X, et al. Small molecules that induce cardiomyogenesis in embryonic stem cells. *J Am Chem Soc.* 2004 Feb 18;126(6):1590-1.

[2]. Mike AK, et al. Small molecule cardiogenol C upregulates cardiac markers and induces cardiac functional properties in lineage-committed progenitor cells. *Cell Physiol Biochem.* 2014;33(1):205-21.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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