

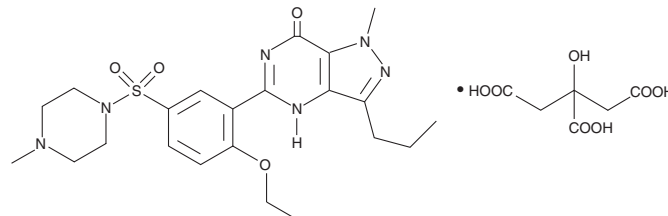
# PRODUCT INFORMATION



## Sildenafil Citrate

Item No. 14008

**CAS Registry No.:** 171599-83-0  
**Formal Name:** 5-[2-ethoxy-5-[(4-methyl-1-piperazinyl)sulfonyl]phenyl]-1,6-dihydro-1-methyl-3-propyl-7H-pyrazolo[4,3-d]pyrimidin-7-one, 2-hydroxy-1,2,3-propanetricarboxylate  
**Synonyms:** Apodofil, Tonafil, UK 92480  
**MF:** C<sub>22</sub>H<sub>30</sub>N<sub>6</sub>O<sub>4</sub>S • C<sub>6</sub>H<sub>8</sub>O<sub>7</sub>  
**FW:** 666.7  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 214, 294 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

Sildenafil citrate is supplied as a crystalline solid. A stock solution may be made by dissolving the sildenafil citrate in the solvent of choice. Sildenafil citrate is soluble in organic solvents such as DMSO and dimethyl formamide, which should be purged with an inert gas. The solubility of sildenafil citrate in these solvents is approximately 14 and 10 mg/ml, respectively.

### Description

Sildenafil is a potent inhibitor of phosphodiesterase 5 (PDE5) with IC<sub>50</sub> values of 3.6 and 3 nM for PDE5 activity in isolated rabbit platelets and human corpus cavernosum, respectively.<sup>1</sup> It is selective for PDE5 over PDE1 and PDE3 (IC<sub>50</sub>s = 0.26 and 65 μM, respectively). Sildenafil reverses glucose-induced decreases in angiopoietin 1 (ANG1) expression and reduction of capillary-like tube formation by mouse dermal endothelial cells *in vitro* and increases the number of functional blood vessels and regional blood flow in the sciatic nerve in a *db/db* mouse model of diabetic peripheral neuropathy.<sup>2</sup> It increases the ratio of maximum intracavernosal pressure to mean arterial blood pressure (ICP/MAP), a measure of erectile function, in castrated rats when administered at a dose of 20 mg/kg per day.<sup>3</sup> Sildenafil (0.5 mg/kg) also reduces cardiac arrest and resuscitation-induced increases in angiotensin II (Item No. 17150), angiotensin converting enzyme (ACE), ACE2, and various angiotensin receptors and increases survival in a porcine model of ischemia/reperfusion injury.<sup>4</sup> Formulations containing sildenafil have been used in the treatment of erectile dysfunction, pulmonary arterial hypertension, and high-altitude pulmonary edema associated with altitude sickness.

### References

1. Terrett, N.K., Bell, A.S., Brown, D., *et al.* Sildenafil (Viagra™), a potent and selective inhibitor of type 5 cGMP phosphodiesterase with utility for the treatment of male erectile dysfunction. *Bioorg. Med. Chem. Lett.* **6(15)**, 1819-1824 (1996).
2. Wang, L., Chopp, M., Szalad, A., *et al.* Sildenafil ameliorates long term peripheral neuropathy in type II diabetic mice. *PLoS One* **10(2)**, e0118134 (2015).
3. Mulhall, J.P., Verma, N., Deveci, S., *et al.* Sildenafil citrate improves erectile function after castration in a rat model. *BJU Int.* **113(4)**, 656-661 (2014).
4. Wang, G., Zhang, Q., Yuan, W., *et al.* Sildenafil protects against myocardial ischemia-reperfusion injury following cardiac arrest in a porcine model: Possible role of the renin-angiotensin system. *Int. J. Mol. Sci.* **16(11)**, 27015-27031 (2015).

#### 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, 11/03/2022

#### 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