

# PRODUCT INFORMATION

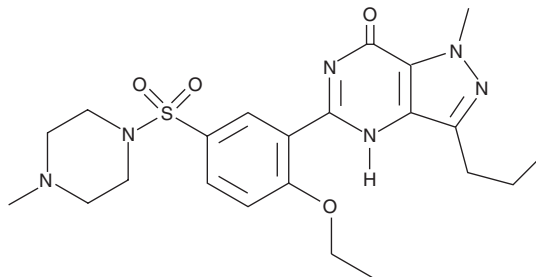


## Sildenafil

Item No. 10008671

**CAS Registry No.:** 139755-83-2  
**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

**MF:** C<sub>22</sub>H<sub>30</sub>N<sub>6</sub>O<sub>4</sub>S  
**FW:** 474.6  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 212, 294 nm  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥2 years



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

### Laboratory Procedures

Sildenafil is supplied as a crystalline solid. A stock solution may be made by dissolving the sildenafil in the solvent of choice. Sildenafil is soluble in organic solvents such as DMSO and dimethyl formamide, which should be purged with an inert gas. The solubility of sildenafil in these solvents is approximately 10 and 5 mg/ml, respectively.

Sildenafil is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, sildenafil should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Sildenafil has a solubility of approximately 0.15 mg/ml in a 1:5 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### 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 angiotensin 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. Bioorg. Med. Chem. Lett.* **6(15)**, 1819-1824 (1996).
2. Wang, L., Chopp, M., Szalad, A., *et al. PLoS One* **10(2)**, e0118134 (2015).
3. Mulhall, J.P., Verma, N., Deveci, S., *et al. BJU Int.* **113(4)**, 656-661 (2014).
4. Wang, G., Zhang, Q., Yuan, W., *et al. 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.

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