

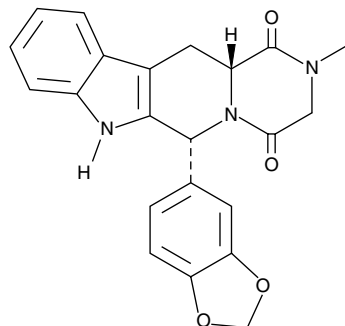
Product Information



Tadalafil

Item No. 14024

CAS Registry No.: 171596-29-5
Formal Name: (6R)-6-(1,3-benzodioxol-5-yl)-2,3,6,7,12,12aR-hexahydro-2-methyl-pyrazino[1',2':1,6]pyrido[3,4-b]indole-1,4-dione
Synonyms: Adcirca, Cialis®
MF: C₂₂H₁₉N₃O₄
FW: 389.4
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: λ_{max}: 221, 284, 292 nm



Laboratory Procedures

For long term storage, we suggest that tadalafil be stored as supplied at -20°C. It should be stable for at least two years.

Tadalafil is supplied as a crystalline solid. A stock solution may be made by dissolving the tadalafil in the solvent of choice. Tadalafil is soluble in organic solvents such as DMSO and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of tadalafil in these solvents is approximately 20 and 25 mg/ml, respectively.

Tadalafil is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, tadalafil should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Tadalafil has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Selective inhibitors of phosphodiesterase 5 (PDE5), which specifically hydrolyzes cGMP, are used to study signaling through the guanylate cyclase activator nitric oxide and to mediate smooth muscle relaxation and vasodilation triggered by cGMP.¹ Tadalafil is a potent inhibitor of PDE5 (IC₅₀ = 1-5 nM) that also blocks the activity of PDE11 (IC₅₀ = 10-33 nM), which hydrolyzes both cAMP and cGMP.^{2,3} The IC₅₀ values for tadalafil against other isoforms of PDE are in the micromolar range.^{2,3} The pharmacokinetics of tadalafil are highlighted by its prolonged duration of effect.⁴ PDE5 inhibitors, including tadalafil, have applications in several conditions, including erectile dysfunction, pulmonary arterial hypertension, and lower urinary tract dysfunction.⁵⁻⁹

References

1. Rotella, D.P. *Nat. Rev. Drug Discov.* **1**, 674-682 (2002).
2. Card, G.L., England, B.P., Suzuki, Y., *et al. Structure* **12(12)**, 2233-2247 (2004).
3. Boyle, C.D., Xu, R., Asberom, T., *et al. Bioorg. Med. Chem. Lett.* **15(9)**, 2365-2369 (2005).
4. Smith, W.B.II., McCaslin, I.R., Gokce, A., *et al. Int. J. Clin. Pract.* **67(8)**, 768-780 (2013).
5. Galiè, N., Negro, L., and Simonneau, G. *Eur. Respir. Rev.* **18(113)**, 148-153 (2009).
6. DeNinno, M.P. *Bioorg. Med. Chem. Lett.* **22(22)**, 6794-6800 (2012).
7. Curran, M.P. *Drugs Aging* **29(9)**, 771-781 (2012).
8. Udeoji, D.U. and Schwartz, E.R. *Ther. Adv. Respir. Dis.* **7(1)**, 39-49 (2013).
9. Yamaguchi, O. *Int. J. Urol.* **20(1)**, 28-39 (2013).

Related Products

For a list of related products please visit: www.caymanchem.com/catalog/14024

WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

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