

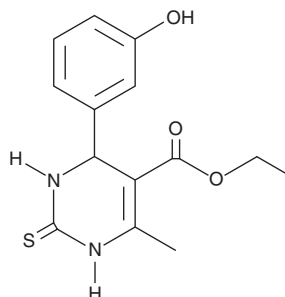
# PRODUCT INFORMATION



## Monastrol

Item No. 15044

**CAS Registry No.:** 329689-23-8  
**Formal Name:** 1,2,3,4-tetrahydro-4-(3-hydroxyphenyl)-6-methyl-2-thioxo-5-pyrimidinecarboxylic acid, ethyl ester  
**Synonym:** (±)-Monastrol  
**MF:** C<sub>14</sub>H<sub>16</sub>N<sub>2</sub>O<sub>3</sub>S  
**FW:** 292.4  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 310 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

Monastrol is supplied as a crystalline solid. A stock solution may be made by dissolving the monastrol in the solvent of choice, which should be purged with an inert gas. Monastrol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of monastrol in these solvents is approximately 1, 14, and 20 mg/ml, respectively.

Monastrol is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, monastrol should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Monastrol 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.

### Description

Monastrol is a reversible, cell-permeable inhibitor of the motor protein Eg5 (kinesin family protein 11, Kif11), blocking basal ATPase activity *in vitro* (IC<sub>50</sub> = 6.1 μM) and inducing the formation of monoastrol spindles in cell-based assays (IC<sub>50</sub> = 51.3 μM).<sup>1-2</sup> It arrests cells in mitosis without targeting tubulin and, as a result, does not interfere with microtubule dependent processes.<sup>3</sup> Monastrol induces activation of the spindle assembly checkpoint and the resulting mitotic arrest can lead to cell death in certain tumor cell lines.<sup>4</sup>

### References

1. Mayer, T.U., Kapoor, T.M., Haggarty, S.J., *et al.* Small molecule inhibitor of mitotic spindle bipolarity identified in a phenotype-based screen. *Science* **286**, 971-974 (1999).
2. Klein, E., DeBonis, S., Thiede, B., *et al.* New chemical tools for investigating human mitotic kinesin Eg5. *Bioorg. Med. Chem.* **15(19)**, 6474-6488 (2007).
3. Kapoor, T.M., Mayer, T.U., Coughlin, M.L., *et al.* Probing spindle assembly mechanisms with monastrol, a small molecule inhibitor of the mitotic kinesin Eg5. *J. Cell Biol.* **150(5)**, 975-988 (2000).
4. Good, J.A.D., Skoufias, D.A., and Kozielski, F. Elucidating the functionality of kinesins: An overview of small molecule inhibitors. *Semin. Cell Dev. Biol.* **22(9)**, 935-945 (2011).

#### 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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