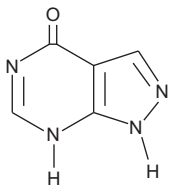
PRODUCT INFORMATION

Allopurinol

Item No. 10012597

CAS Registry No.: 315-30-0
Formal Name: 1,5-dihydro-4H-pyrazolo[3,4-d] pyrimidin-4-one
MF: $C_5H_4N_4O$
FW: 136.1
Purity: ≥98%
UV/Vis.: λ_{max}: 251 nm
Supplied as: A crystalline solid
Storage: Room temperature
Stability: ≥4 years



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

Laboratory Procedures

Allopurinol is supplied as a crystalline solid. A stock solution may be made by dissolving the allopurinol in the solvent of choice, which should be purged with an inert gas. Allopurinol is soluble in the organic solvent DMSO at a concentration of approximately 3 mg/ml.

Allopurinol is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, allopurinol should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Allopurinol has a solubility of approximately 0.1 mg/ml in a 1:10 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Xanthine oxidoreductase mediates the successive oxidation of hypoxanthine and xanthine to produce uric acid. The enzyme can interconvert between xanthine dehydrogenase and xanthine oxidase activities through reversible sulfhydryl oxidation on specific cysteine residues. Both forms oxidize hypoxanthine and xanthine to uric acid. However the dehydrogenase simultaneously reduces nicotinamide adenine dinucleotide while the oxidase reduces oxygen to superoxide. Allopurinol is an isomer of hypoxanthine that inhibits xanthine oxidoreductase (IC_{50} = 0.2-50 µM, depending on assay and cell type).[1,2] *In vivo*, allopurinol has been reported to effectively and safely lower serum and urinary uric acid levels and is also reported to be effective in the treatment of gout and hyperuricemia. Allopurinol is rapidly metabolized *in vivo* to the xanthine analog oxypurinol, which is a metabolite that clearly augments the therapeutic effect of allopurinol.[3]

References

1. Fujimoto, Y., Sakuma, S., Tagami, T., *et al*. N-ethylmaleimide inhibits xanthine oxidase activity with no detectable change in xanthine dehydrogenase activity in rabbit liver. *Life Sci.* **68**, 517-524 (2000).
2. Pacher, P., Nivorozhkin, A., and Szabó, C. Therapeutic effects of xanthine oxidase inhibitors: Renaissance half a century after the discovery of allopurinol. *Pharmacol Rev*. **58(1)**, 87-114 (2006).
3. Day, R.O., Graham, G.G., Hicks, M., *et al*. Clinical pharmacokinetics and pharmacodynamics of allopurinol and oxypurinol. *Clin Pharmacokinet* **46(8)**, 623-644 (2007).

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