



Product Information

Uric acid SigmaUltra

Product Number **U 0881**
Store at Room Temperature

Product Description

Molecular Formula: $C_5H_4N_4O_3$

Molecular Weight: 168.1

CAS Number: 69-93-2

pK_a : 5.4, 11.3¹

Extinction coefficient: $E^{mM} = 12.65$ (292 nm)

Synonyms: 7,9-dihydro-1H-purine-2,6,8(3H)-trione,
8-hydroxanthine, purine-2,6,8-triol, 2,6,8-trioxypurine²

Trace elemental analyses have been performed on the SigmaUltra uric acid. The Certificate of Analysis provides lot-specific results. SigmaUltra uric acid is for applications which require tight control of elemental content.

Uric acid is the terminal product of purine degradation in humans. It is formed from the action of xanthine oxidase upon xanthine. Elevated levels of uric acid may clinically be manifested as gout. In species other than humans, uric acid can be further metabolized. In mammals other than primates, uric acid is converted to allantoin. In teleost fish, allantoin is further converted to allantoinate, which is hydrolyzed to urea and glyoxylate.^{3,4} Uric acid may also be used in the biosynthesis of purines.⁵

Uric acid has been studied as a scavenger of biological free radicals.^{6,7} HPLC and GC/MS methods for uric acid have been published.^{8,9} Uric acid has been shown to stimulate monocyte chemoattractant protein-1 (MCP-1) expression in vascular smooth muscle cells.¹⁰

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in 1 M NaOH (50 mg/ml), with heat and sonication as needed, yielding a clear, faint yellow solution.

References

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5. DNA Replication, 2nd ed., Kornberg, A., and Baker, T. A., W. H. Freeman and Co. (New York, NY: 1992), pp. 55-56.
6. Kean, R. B., et al., The peroxynitrite scavenger uric acid prevents inflammatory cell invasion into the central nervous system in experimental allergic encephalomyelitis through maintenance of blood-central nervous system barrier integrity. *J. Immunol.*, **165(11)**, 6511-6518 (2000).
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8. Pappa-Louisi, A., and Pascalidou, S., Optimal conditions for the simultaneous ion-pairing HPLC determination of L-ascorbic, dehydro-L-ascorbic, D-ascorbic, and uric acids with on-line ultraviolet absorbance and electrochemical detection. *Anal Biochem.*, **263(2)**, 176-182 (1998).

9. Simek, P., et al., Determination of purine bases and nucleosides by conventional and, microbore high-performance liquid chromatography and gas chromatography with an ion-trap detector. J. Chromatogr. A., **679(1)**, 195-200 (1994).
10. Kanellis, J., et al., Uric Acid Stimulates Monocyte Chemoattractant Protein-1 Production in Vascular Smooth Muscle Cells Via Mitogen-Activated Protein Kinase and Cyclooxygenase-2. Hypertension, **41(6)**, 1287-1293 (2003).

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