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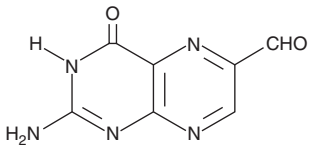
PRODUCT INFORMATION

6-Formylpterin

Item No. 14247

CAS Registry No.:	712-30-1
Formal Name:	2-amino-3,4-dihydro-4-oxo-6-pteridinecarboxaldehyde
Synonyms:	2-Amino-6-formylpteridin-4-one, 6-FP, Pterin-6-aldehyde
MF:	$C_7H_5N_5O_2$
FW:	191.1191.1
Purity:	≥98%
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

6-Formylpterin is supplied as a crystalline solid. A stock solution may be made by dissolving the 6-formylpterin in the solvent of choice. 6-Formylpterin is soluble in organic solvents such as ethanol and dimethyl formamide, which should be purged with an inert gas. The solubility of 6-formylpterin in these solvents is approximately 1.6 and 50 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of 6-formylpterin can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 6-formylpterin in PBS, pH 7.2, is approximately 0.15 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Xanthine oxidase (XO) generates reactive oxygen species, including hydrogen peroxide (H_2O_2), as it oxidizes specific substrates in the presence of water and oxygen.[1] 6-Formylpterin is an oxidized pterin produced by photolytic breakdown of folic acid.[2] It binds to one of two active sites on XO nearly quantitatively and irreversibly and prevents the metabolism of other substrates at the second site, resulting in "hetero-substrate" inhibition at nanomolar concentrations.[2,3] However, 6-formylpterin itself is converted by XO to 6-carboxylpterin and H_2O_2 and the turnover rate of this reaction can actually be accelerated by prior binding of a hetero-substrate to XO.[3] In this way, 6-formylpterin acts as an intracellular generator of H_2O_2 in cells expressing XO, altering cellular function.[4,5]

References

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5. Mori, H., Arai, T., Hirota, K., *et al. Biochim. Biophys. Acta* **1474(1)**, 93-99 (2000).

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