PRODUCT INFORMATION



8-Nitroguanine

Item No. 89295

CAS Registry No.:	168701-80-2	
Formal Name:	2-amino-1,9-dihydro-8-nitro-6H-purin-6-one	
MF:	$C_5H_4N_6O_3$	о н
FW:	196.1	H. L N
Purity:	≥95%	N N
UV/Vis.:	λ _{max} : 397 nm	$ $ $ $ NO_2
Supplied as:	A solid	HaNNN
Storage:	-20°C	
Stability:	≥4 years	

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

Laboratory Procedures

8-Nitroguanine is supplied as a solid. A stock solution may be made by dissolving the 8-nitroguanine in the solvent of choice. 8-Nitroguanine is soluble in 1 M sodium hydroxide at a concentration of approximately 50 mg/ml.

Description

8-Nitroguanine is a nitrative guanine derivative formed by oxidative damage to the guanine base in DNA by reactive nitrogen species (RNS) during inflammation and in vitro by reaction of DNA with peroxynitrite and other RNS reagents.¹⁻³ It is mutagenic and induces G:C to T:A transversion in DNA. Incorporation of 8-nitroguanine as an 8-nitroG:anti-G base pair into a primer template stalls human DNA polymerase β and induces a 2:1 preference for deoxyadenosine (dA) insertion over deoxycytosine (dC).³ 8-Nitroguanine levels are increased in the lung tissue of mice with conditional expression of mutant K-Ras(G12V) that developed lung adenocarcinoma and in the lung tissue and peripheral lymphocyte DNA of cigarette smoke-exposed rats.^{4,5} It is also increased in the lung tissue of influenza- or Sendai virus-infected mice and the colon epithelial cells of mice in an inflammatory bowel disease (IBD) model.^{6,7}

References

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- 2. Ohshima, H., Sawa, T., and Akaike, T. 8-nitroguanine, a product of nitrative DNA damage caused by reactive nitrogen species: Formation, occurrence, and implications in inflammation and carcinogenesis. Antioxid. Redox Signal. 8(5-6), 1033-1045 (2006).
- 3. Bhamra, I., Compagnone-Post, P., O'Neil, I.A., et al. Base-pairing preferences, physicochemical properties and mutational behaviour of the DNA lesion 8-nitroguanine. Nucleic Acids Res. 40(21), 11126-11138 (2012).
- 4. Ohnishi, S., Saito, H., Suzuki, N., et al. Nitrative and oxidative DNA damage caused by K-ras mutation in mice. Biochem. Biophys. Res. Commun. 413(2), 236-240 (2011).
- 5. Hsieh, Y.-S., Chen, B.-C., Shiow, S.-J., et al. Formation of 8-nitroguanine in tobacco cigarette smokers and in tobacco smoke-exposed Wistar rats. Chem. Biol. Interact. 140(1), 67-80 (2002).
- 6. Akaike, T., Okamoto, S., Sawa, T., et al. 8-nitroguanosine formation in viral pneumonia and its implication for pathogenesis. Proc. Natl. Acad. Sci. U.S.A. 100(2), 685-690 (2003).
- 7. Ding, X., Hiraku, Y., Ma, N., et al. Inducible nitric oxide synthase-dependent DNA damage in mouse model of inflammatory bowel disease. Cancer Sci. 96(3), 157-163 (2005).

WARNING THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFFTY 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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