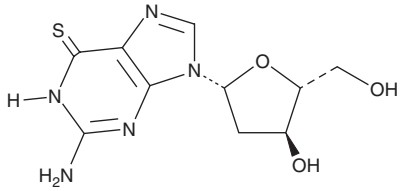
PRODUCT INFORMATION

6-thio-2′-Deoxyguanosine

Item No. 19154

CAS Registry No.: 789-61-7
Formal Name: 2'-deoxy-6-thio-guanosine
Synonyms: 6-thio-dG, NSC 71261, β-Thioguanine deoxyriboside
MF: $C_{10}H_{13}N_5O_3S$
FW: 283.3
Purity: ≥95%
UV/Vis.: λ_{max}: 209, 259, 346 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

6-thio-2′-Deoxyguanosine (6-thio-dG) is supplied as a crystalline solid. A stock solution may be made by dissolving the 6-thio-dG in the solvent of choice, which should be purged with an inert gas. 6-thio-dG is soluble in organic solvents such as DMSO and dimethyl formamide (DMF). The solubility of 6-thio-dG in these solvents is approximately 20 mg/ml.

6-thio-dG is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 6-thio-dG should first be dissolved in DMF and then diluted with the aqueous buffer of choice. 6-thio-dG 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

6-thio-2′-Deoxyguanosine (6-thio-dG) is a purine nucleoside analog. It reduces infection of Calu-3 cells by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; EC_{50} = 0.04 µM) but is also toxic to Calu-3 cells with a 50% cytotoxic concentration (CC_{50}) value of 1.14 µM.[1] 6-Thio-dG (2 mg/kg) decreases tumor volume and increases the number of tumor cells with telomere dysfunction-induced foci in an A549 non-small cell lung cancer (NSCLC) mouse xenograft model.[2] It increases the number of programmed cell death protein 1 (PD-1) positive $CD8^+$ T cells, as well as induces tumor regression when administered in combination with an antibody against PD-1 ligand (PD-L1) in MC-38 murine colon carcinoma models.[3]

References

1. Schultz, D.C., Johnson, R.M., Ayyanathan, K., *et al.* Pyrimidine inhibitors synergize with nucleoside analogues to block SARS-CoV-2. *Nature* **604(7904),** 134-140 (2022).
2. Mender, I., Gryaznov, S., Dikmen, Z.G., *et al.* Induction of telomere dysfunction mediated by the telomerase substrate precursor 6-thio-2'-deoxyguanosine. *Cancer Discov.* **5(1),** 82-95 (2015).
3. Mender, I., Zhang, A., Ren, Z., *et al.* Telomere stress potentiates STING-dependent anti-tumor immunity. *Cancer Cell* **38(3),** 400-411 (2020).

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