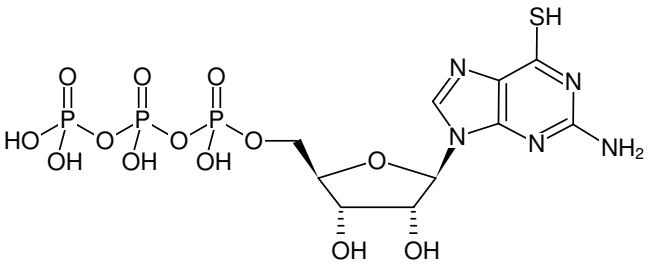
DATA SHEET

Jena Bioscience

6-Thio-GTP

6-Thio-guanosine-5'-triphosphate, Sodium salt

Cat. No.	Amount
NU-1106S	150 µl (10 mM)
NU-1106L	5 x 150 µl (10 mM)



Structural formula of 6-Thio-GTP

For general laboratory use.

Shipping: shipped on gel packs

Storage Conditions: store at -20 °C

Short term exposure (up to 1 week cumulative) to ambient temperature possible.

Shelf Life: 12 months after date of delivery

Molecular Formula: $C_{10}H_{16}N_5O_{13}P_3S$ (free acid)

Molecular Weight: 539.24 g/mol (free acid)

Exact Mass: 538.97 g/mol (free acid)

CAS#: 17670-19-8

Purity: ≥ 95 % (HPLC)

Form: solution in water

Color: colorless to slightly yellow

Concentration: 10 mM - 11 mM

pH: 7.5 ±0.5

Spectroscopic Properties: λ_{max} 257 nm, ε 8.8 L mmol^{-1} cm^{-1} (Tris-HCl pH 7.5), λ_{max} 342 nm, ε 24.8 L mmol^{-1} cm^{-1} (Tris-HCl pH 7.5)

Applications:
Allosteric effect on E.coli CTP-synthase[1]

Inhibition of Vac-1-Rac signalling[2]

Immunosuppression by blockade of GTPase activation[3, 4]

Immunosuppressive drug (transplantation, inflammation)[1, 4]

Selected References:

[1] Lunn *et al.* (2008) Structural requirements for the activation of Escherichia coli CTP synthase by the allosteric effector GTP are stringent, but requirements for inhibition are lax. *J. Biol Chem.* **283**:2010.

[2] Wang *et al.* (2007) Enhanced cardiac allograft survival by Vav1-Rac signaling blockade in a mouse model. *Transplant Immunology* **18**:53.

[3] Poppe *et al.* (2005) Azothioprine suppresses Ezrin-Radixin-Moesin-dependent T cell-APC conjugation through inhibition of Vav Guanosine exchange activity on Rac proteins. *J. Immunology* **176**:640.

[4] Tiede *et al.* (2003) CD28-dependent Rac1 activation is the molecular target of azathioprine in primary human CD4+t lymphocytes. *J. Clinical Investigation* **111**:1133.

Karner *et al.* (2010) Determination of 6-thioguanosine diphosphate and triphosphate and nucleoside diphosphate kinase activity in erythrocytes: novel targets for thiopurine therapy? *Ther. Drug Monit.* **32 (2)**:119.

Bao *et al.* (2008) Coordination of two sequential ester-transfer reactions: exogenous guanosine binding promotes the subsequent wG binding to a group I intron. *Nucleic Acids Research* **36 (21)**:6934.

Du *et al.* (2007) Enhanced cardiac allograft survival by Vav1-Rac signalling blockade in a mouse model. *Transplant Immunology* **18 (1)**: 53.

Pestova *et al.* (2006) Specific functional interactions of nucleotides at key ¯3 and ⁺4 positions flanking the initiation codon with components of the mammalian 48S translation initiation complex. *Genes & Development* **20**:624.

Neurath *et al.* (2005) 6-Thioguanosine Diphosphate and Triphosphate Levels in Red Blood Cells and Response to Azathioprine Therapy in Crohn's Disease. *Clinical Gastroenterology and Hepatology* **3 (10)**: 1007.

Poland *et al.* (1997) Entrapment of 6-thiophosphoryl-IMP in the active site of crystalline adenylosuccinate synthetase from Escherichia coli. *J. Biol. Chem.* **272 (24)**:15200.

Yarbrough *et al.* (1985) Kinetics of interaction of 2-amino-6-mercapto-9-beta-ribofuranosylpurine 5'-triphosphate with bovine brain tubulin. *Biochemistry-US* **24 (7)**:1708.

Fishback *et al.* (1984) Interaction of 6-mercapto-GTP with bovine brain tubulin - equilibrium aspects. *J. Biol. Chem.* **259 (3)**:1968.