

PRODUCT INFORMATION



6-Thioguanosine-5'-O-triphosphate (sodium salt)

Item No. 38390

Formal Name: 6-thio-guanosine 5'-(tetrahydrogen triphosphate), tetrasodium salt

Synonym: 6-Thio-GTP

MF: $C_{10}H_{12}N_5O_{13}P_3S \cdot 4Na$

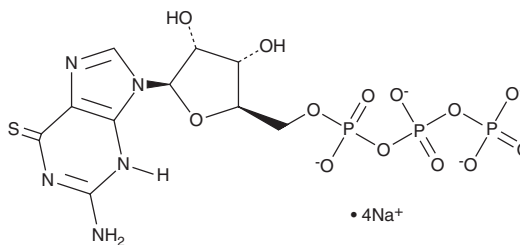
FW: 627.2

Purity: $\geq 98\%$

Supplied as: A solution in water

Storage: -80°C

Stability: ≥ 4 years



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

Description

6-Thioguanosine-5'-O-triphosphate (6-thio-GTP) is an active metabolite of the purine analog 6-thioguanine (Item No. 15774) and the immunosuppressive purine analog azathioprine (Item No. 13987).^{1,2} It is formed from 6-thioguanine via 6-thio-GMP and 6-thio-GDP intermediates by phosphorylation and from azathioprine via 6-mercaptopurine (Item No. 23675), 6-thio-GMP, and 6-thio-GDP intermediates by a non-enzymatic process and several enzymatic reactions. 6-thio-GTP binds to a variety of GTPases, including Rac, Ras, Cdc42, and RhoA but selectively inhibits activation of Rac1 and Rac2 over Cdc42 in primary human CD4⁺ T cells stimulated with anti-CD3 and anti-CD28 antibodies.^{3,4} It inhibits T cell receptor-stimulated proliferation of T cells and reduces CD28-dependent T cell survival *in vitro* in isolated mouse splenocytes.⁵ 6-Thio-GTP (0.5 mg/kg) increases survival in a mouse model of heart transplantation.

References

1. Hawwa, A.F., Millership, J.S., Collier, P.A., *et al.* Pharmacogenomic studies of the anticancer and immunosuppressive thiopurines mercaptopurine and azathioprine. *Br. J. Clin. Pharmacol.* **66**(4), 517-528 (2008).
2. Neurath, M.F., Kiesslich, R., Teichgraber, U., *et al.* 6-Thioguanosine diphosphate and triphosphate levels in red blood cells and response to azathioprine therapy in Crohn's disease. *Clin. Gastroenterol. Hepatol.* **3**(10), 1007-1014 (2005).
3. Tiede, I., Fritz, G., Strand, S., *et al.* CD28-dependent Rac1 activation is the molecular target of azathioprine in primary human CD4⁺ T lymphocytes. *J. Clin. Invest.* **111**(8), 1133-1145 (2003).
4. Poppe, D., Tiede, I., Fritz, G., *et al.* Azathioprine suppresses ezrin-radixin-moesin-dependent T cell-APC conjugation through inhibition of Vav guanosine exchange activity on Rac proteins. *J. Immunol.* **176**(1), 640-651 (2006).
5. Wang, S., Diao, H., Guan, Q., *et al.* Enhanced cardiac allograft survival by Vav1-Rac signaling blockade in a mouse model. *Transpl. Immunol.* **18**(1), 53-61 (2007).

WARNING

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

SAFETY 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.

WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 10/31/2025

CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897
[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM