# Thymidine 3',5'-diphosphate tetrasodium

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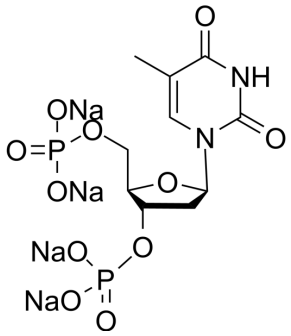
| **Cat. No.:** | HY-115581A |
| **CAS No.:** | 118675-87-9 |
| **Molecular Formula:** | $C_{10}H_{12}N_2Na_4O_{11}P_2$ |
| **Molecular Weight:** | 490.12 |
| **Target:** | Apoptosis; MicroRNA |
| **Pathway:** | Apoptosis; Epigenetics |
| **Storage:** | 4°C, sealed storage, away from moisture<br>* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture) |



## SOLVENT & SOLUBILITY

**In Vitro**

$H_2O$ : 50 mg/mL (102.02 mM; Need ultrasonic)
DMSO : 3.33 mg/mL (6.79 mM; ultrasonic and warming and heat to 60°C)

**Preparing Stock Solutions**

| Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 2.0403 mL | 10.2016 mL | 20.4032 mL |
| 5 mM | 0.4081 mL | 2.0403 mL | 4.0806 mL |
| 10 mM | 0.2040 mL | 1.0202 mL | 2.0403 mL |

Please refer to the solubility information to select the appropriate solvent.

## BIOLOGICAL ACTIVITY

**Description**

Thymidine 3',5'-diphosphate (Deoxythymidine 3′,5′-diphosphate) tetrasodium is a selective inhibitor of staphylococcal nuclease and tudor domain containing 1 (SND1, the MicroRNA regulatory complex RISC subunit) and [3,5-$^2H_2$] tyrosyl nuclease. Thymidine 3',5'-diphosphate tetrasodium has anti-tumor activity and can also be used as a catalyst in biochemical reactions[1][2].

**$IC_{50}$ & Target**

Staphylococcal nuclease and tudor domain containing 1, SND1; [3,5-(2)H(2)] Tyrosyl nuclease[1][2]

**In Vitro**

Thymidine 3',5'-diphosphate tetrasodium (200 μM; 18 h) significantly reduces the expression level of p65 and p65 nuclear translocation in WT and Alb/SND1 (specific transgenic mouse overexpressing SND1) hepatocytes by inhibiting staphylococcal nuclease and tudor domain containing 1 (SND1) enzyme activity. Thymidine 3',5'-diphosphate tetrasodium inhibits the spherical formation of WT and Alb/SND1 hepatocytes[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

**In Vivo**

Thymidine 3',5'-diphosphate tetrasodium (0.8 mg/kg; i.p.; twice a week for 4 weeks) has insignificant effect on serum liver enzymes (AST, ALT, AP), total protein (TP), albumin (Alb), and globulin (Glo) in WT B6/CBA mice[1].
Thymidine 3',5'-diphosphate tetrasodium (0.8 mg/kg and 1.6 mg/kg; i.v.; twice a week for 4 weeks) significantly inhibits

tumor growth in WT B6/CBA mice[1].
Thymidine 3',5'-diphosphate tetrasodium (0.8, 0.16 and 0.32 mg/kg; s.c.; twice a week for 4 weeks) inhibits tumor growth, inflammatory reaction and the expression of tumor initiating cells (TIC) markers in adult male NSG mice. Thymidine 3',5'-diphosphate tetrasodium up-regulates the expression of PTEN, TGFBR2 and CDKN1C apoptosis and selective tumor suppressor genes[1].

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| Animal Model: | 2 months old WT B6/CBA mice[1]. |
| Dosage: | 0.8 mg/kg. |
| Administration: | Intraperitoneal injection; twice a week for 4 weeks. |
| Result: | Had insignificant effect on serum liver enzymes, total protein, albumin and globulin and showed biosafety. |

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| Animal Model: | NSG mice[1]. |
| Dosage: | 0.8, 0.16 or 0.32 mg/kg. |
| Administration: | Intravenous injection or subcutaneous injection; twice a week for 4 weeks. |
| Result: | Inhibited tumor growth, showed antitumor activity and immunomodulatory effects. |

## REFERENCES


[1]. Nidhi Jariwala, et al. Oncogenic Role of SND1 in Development and Progression of Hepatocellular Carcinoma. Cancer Res. 2017 Jun 15;77(12):3306-3316.

[2]. Cohen J S, et al. Proton magnetic resonance studies of the tyrosine residues of staphylococcal nuclease using [3, 5-2H2] tyrosine[J]. Biochimica et Biophysica Acta (BBA)-Protein Structure, 1971, 236(2): 468-478.





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