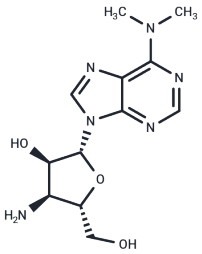
Data Sheet (Cat.No.T16684)

TargetMol

Puromycin aminonucleoside

Chemical Properties



CAS No. : 58-60-6

Formula: C12H18N6O3

Molecular Weight: 294.31

Storage: Keep away from direct sunlight,Store under nitrogen
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Puromycin aminonucleoside (NSC 3056) is an aminonucleoside antibiotic and a purine analog of puromycin. It can reversibly inhibit dipeptidyl peptidase and cytosolic alanine aminopeptidase, increase podocyte permeability by regulating ZO-1 in an oxidative stress-dependent manner, induce apoptosis, and promote the secretion of migrasomes. It is commonly used to induce nephrotic syndrome models in research.
Targets(IC50)	Apoptosis,Proteasome,Aminopeptidase,Antibacterial,Antibiotic
In vitro	Puromycin aminonucleoside -induced podocyte apoptosis is p53 dependent. Puromycin aminonucleoside causes podocyte apoptosis in a time-dependent manner. The IC50 values for PMAT-expressing and vector-transfected cells are 48.9 and 122.1 μM, respectively, suggesting expression of PMAT-enhanced cell sensitivity to Puromycin aminonucleoside. Puromycin aminonucleoside uptake in PMAT-expressing cells is fourfold higher at pH 6.6 than that at pH 7.4. Puromycin aminonucleoside (30 μg/mL) markedly enhances p53 protein levels in podocytes. Puromycin aminonucleoside (250 μM) is toxic to both PMAT-expressing and vector-transfected cells [2][4].
In vivo	Rats administered Puromycin aminonucleoside (100 mg/kg, s.c.) exhibited reduced weight gain and elevated serum creatinine levels compared to controls. The podocyte count per glomerulus in control rats stood at 95.5±17.6, dropping to 90.7 by Day 4 in rats with Puromycin aminonucleoside (8 mg/100 g, i.v.)-induced nephrosis. Furthermore, nephrin levels per glomerulus in controls were 1.02±0.11 fmol, which decreased significantly in nephrosis rats to 0.46±0.06 fmol and 0.35±0.04 fmol on Days 4 and 7, respectively. This reduction in nephrin per podocyte was closely linked to proteinuria development in rats affected by Puromycin aminonucleoside nephrosis [5][6].

Solubility Information

Solubility	H2O: 50 mg/mL (169.89 mM),Sonication is recommended. DMSO: 33 mg/mL (112.13 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (6.8 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and*

In vivo Formulation	*used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.3978 mL	16.9889 mL	33.9778 mL
5 mM	0.6796 mL	3.3978 mL	6.7956 mL
10 mM	0.3398 mL	1.6989 mL	3.3978 mL
50 mM	0.068 mL	0.3398 mL	0.6796 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Lacalle RA, et al. Cloning of the complete biosynthetic gene cluster for an aminonucleoside antibiotic, puromycin, and its regulated expression in heterologous hosts. EMBO J. 1992 Feb;11(2):785-92.
Wada T, et al. Prevents podocyte apoptosis induced by puromycin aminonucleoside: role of p53 and Bcl-2-related family proteins. J Am Soc Nephrol. 2005 Sep;16(9):2615-25.
Gong W, et al. Estrogen-related receptor-α mediates puromycin aminonucleoside-induced mesangial cell apoptosis and inflammatory injury. Am J Physiol Renal Physiol. 2019 May 1;316(5):F906-F913.
Xia L, et al. Podocyte-specific expression of organic cation transporter PMAT: implication in puromycin aminonucleosidenephrotoxicity. Am J Physiol Renal Physiol. 2009 Jun;296(6):F1307-13.
Kawakami H, et al. Dynamics of absolute amount of nephrin in a single podocyte in puromycin aminonucleoside nephrosis rats calculated by quantitative glomerular proteomics approach with selected reaction monitoring mode. Nephrol Dial Transplant. 2012 Apr;
Nosaka K, et al. An adenosine deaminase inhibitor prevents puromycin aminonucleoside nephrotoxicity. Free Radic Biol Med 1997 ;22 (4): 597-605.