

Aminophylline

Catalog No: tcsc1936



Available Sizes

Size: 100mg

Size: 500mg



Specifications

CAS No:

317-34-0

Formula:

$C_{16}H_{24}N_{10}O_4$

Pathway:

Metabolic Enzyme/Protease

Target:

Phosphodiesterase (PDE)

Purity / Grade:

>98%

Solubility:

DMSO : 42 mg/mL (99.90 mM; Need ultrasonic and warming)

Observed Molecular Weight:

420.43

Product Description

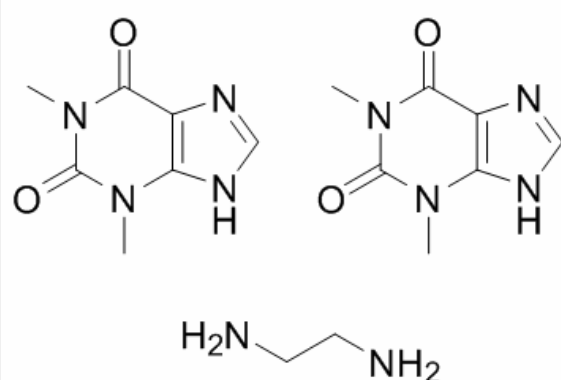
Aminophylline is a competitive nonselective phosphodiesterase inhibitor that is used to treat airway obstruction from asthma or COPD.

Target: Phosphodiesterase

Aminophylline is a compound of the bronchodilator theophylline with ethylenediamine in 2:1 ratio. The ethylenediamine improves

solubility, and the aminophylline is usually found as a dihydrate. Aminophylline is less potent and shorter-acting than theophylline. Its most common use is in the treatment of airway obstruction from asthma or COPD. It is used off-label as a reversal agent during nuclear stress testing. Aminophylline is a nonselective adenosine receptor antagonist and phosphodiesterase inhibitor.

Adenosine is an endogenous extracellular messenger that can regulate myocardial oxygen needs. It acts through cellular surface receptors which effect intracellular signalling pathways to increase coronary artery blood flow, slow heart rate, block atrioventricular node conduction, suppress cardiac automaticity, and decrease β -adrenergic effects on contractility. Adenosine also antagonizes chronotropic and ionotropic effects of circulating catecholamines. Overall, adenosine decreases the heart's rate and force of contraction, which increases blood supply to the cardiac muscle. Given specific circumstances this mechanism (which is intended to protect the heart) may cause atropine-resistant refractory bradycardia. Adenosine's effects are concentration-dependent. Adenosine's receptors are competitively antagonized by methylxanthines such as aminophylline. Aminophylline competitively antagonizes the cardiac actions of adenosine at the cell surface receptors. Thus, it increases heart rate and contractility.



All products are for RESEARCH USE ONLY. Not for diagnostic & therapeutic purposes!