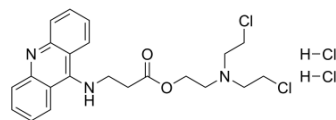


Amustaline dihydrochloride

Cat. No.:	HY-106991A
CAS No.:	210584-54-6
Molecular Formula:	C ₂₂ H ₂₇ Cl ₄ N ₃ O ₂
Molecular Weight:	507.28
Target:	HIV; Bacterial
Pathway:	Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Amustaline (S-303) dihydrochloride, a nucleic acid-targeted alkylator, is an efficient pathogen inactivation agent for blood components containing red blood cells. Amustaline dihydrochloride has three components: an acridine anchor (an intercalator that targets nucleic acids non-covalently), an effector (a bis-alkylator group that reacts with nucleophiles), and a linker (a small flexible carbon chain containing a labile ester bond that hydrolyzes at neutral pH to yield non-reactive breakdown products) ^{[1][2]} .
In Vitro	<p>S-303 (200 μM; 20 h) and glutathione (GSH; 20 mM) inactivates high titres of Chikungunya virus (CHIKV) in red blood cells (RBCs)^[1].</p> <p>S-303 (200 μM; 20 h) and GSH (2 mM) inactivates >6.5 logs of HIV, >5.7 logs of Bluetongue virus, >7.0 logs of Yersinia enterocolitica, 4.2 logs of Serratia marcescens, and 7.5 logs of Staphylococcus epidermidis in whole blood experiments^[2].</p> <p>S-303 (200 μM; 20 h) and GSH (20 mM) inactivates approximately 5 logs or greater of Y. enterocolitica, E. coli, S. marcescens, S. aureus, HIV, bovine viral diarrhoea virus, bluetongue virus and human adenovirus 5 in RBC^[2].</p> <p>S-303 (200 μM; 20 h) retains in vitro parameters of RBC function and physiology (including total ATP, extracellular potassium, hemolysis, glucose consumption, lactate production, and pH at 37 °C) compared to conventional RBC^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
In Vivo	<p>S-303 RBCs (a single transfusion) is well tolerated in rats (50 μmol/kg) and dogs (70 μmol/kg)^[3].</p> <p>S-303 RBCs (repeated transfusions) is well tolerated in rats (10 μmol/kg) and dogs (10 μmol/kg) with no histopathologic evidence of organ toxicity^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

REFERENCES

- [1]. Aubry M, et, al. Amustaline (S-303) treatment inactivates high levels of Chikungunya virus in red-blood-cell components. Vox Sang. 2018 Apr;113(3):232-241.
- [2]. Mufti NA, et, al. Treatment of whole blood (WB) and red blood cells (RBC) with S-303 inactivates pathogens and retains in vitro quality of stored RBC. Biologicals. 2010 Jan;38(1):14-9.
- [3]. North A, et, al. Preclinical pharmacokinetic and toxicology assessment of red blood cells prepared with S-303 pathogen inactivation treatment. Transfusion. 2011 Oct;51(10):2208-18.

Caution: Product has not been fully validated for medical applications. For research use only.

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