Product Data Sheet

Product Name: Melimine acetate
Cat. No.: GC81845

Chemical Properties

Cas. No.

Formula	$C_{158}H_{290}N_{74}O_{35}{\cdot}xC_2H_4O_2$	M.Wt	3786.47
Solubility	DMSO: 25 mg/mL (Need ultrasonic)	Storage	Sealed storage, away from moisture
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure

Background

Melimine acetate is an antimicrobial peptide with broad-spectrum antimicrobial activity against Gram-negative/Gram-positive bacteria, fungi and protozoa. Melimine acetate neutralizes endotoxin activity by interacting with the phosphate groups of lipid A, depolarizes and permeabilizes the cytoplasmic

membrane of *Pseudomonas aeruginosa*, and induces bacterial lysis. Melimine acetate exerts additive antiviral effects against H1N1 and MHV-1 when used in combination with RK610. Melimine acetate retains its antimicrobial activity when conjugated to polymer and titanium surfaces. Melimine acetate can be used in infection-related research [1] [2] [3].

In Vivo, Melimine (150 μg/lens; ocular surface placement) acetate functionalized contact lenses are safe for ocular use in rabbits, maintain key lens properties, and retain antimicrobial activity during wear[2].

In Vitro, Melimine acetate exhibits no independent antiviral activity against H1N1, MHV-1 or HSV-1; when combined with RK610, it produces an additive effect against H1N1 in MDCK cells and against MHV-1 in A9 cells, while showing no interaction against HSV-1 in Vero cells[1]. Melimine acetate exhibits high cytotoxicity against A9 cells at a concentration of 62.5 μM, and retains cytotoxicity when combined with 1.09 μM RK610; at a concentration of 31.25 μM, either used alone or in combination with 1 μM RK610, it shows no cytotoxicity against MDCK cells[1]. Melimine acetate-modified soft contact lenses increase the adhesion inhibition rate of Pseudomonas aeruginosa ATCC 9027 and Staphylococcus aureus ATCC 6538 to 80%, and exhibit no cytotoxicity to mammalian ocular cells[2]. Melimine acetate inhibits and kills the growth of Pseudomonas aeruginosa strains 6206, 6294, Paer1 and ATCC 19660, with MIC values ranging from 66 to 132 nM and MBC values ranging from 132 to 528 nM[3]. Melimine acetate dose-dependently neutralizes LPS of Pseudomonas aeruginosa, with a neutralization rate of 71% at 1×100 MIC and 82% at 2×100 MIC[3]. Melimine (66-132 nM) acetate rapidly depolarizes the cytoplasmic membrane of Pseudomonas aeruginosa 6294 within 30 seconds; it permeabilizes the cytoplasmic membrane of Pseudomonas aeruginosa 6294, allowing Sytox Green to start entering the cells at 5 minutes; it induces concentration-dependent release of DNA/RNA from Pseudomonas aeruginosa 6294; and it lyses Pseudomonas aeruginosa 6294 in a concentration-dependent manner[3]. Melimine (66 nM; 30-150 min) acetate permeabilizes the cell membrane of Pseudomonas aeruginosa strain 6294 in 74.8% of cells within 30 minutes[3]. Melimine (66-132 nM; 2-10 min) acetate releases 75% of total cellular ATP at 66 nM and 92% of total cellular ATP at 132 nM from Pseudomonas aeruginosa 6294 within 2 minutes, while the viable cell count decreases by >3.0 $\log_{10}$[3].

References:

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[1]. Urmi UL, et al. Synergistic effects of peptide mimics against enveloped viruses. Virology. 2025 Sep;610:110599.
[2]. Salvagni E, et al. Short and ultrashort antimicrobial peptides anchored onto soft commercial contact lenses inhibit bacterial adhesion. Colloids and surfaces. B, Biointerfaces. 2020 Dec;196:111283.
[3]. Yasir M, et al. Comparative mode of action of the antimicrobial peptide melimine and its derivative Mel4 against Pseudomonas aeruginosa. Scientific reports. 2019 May 08;9(1):7063.

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