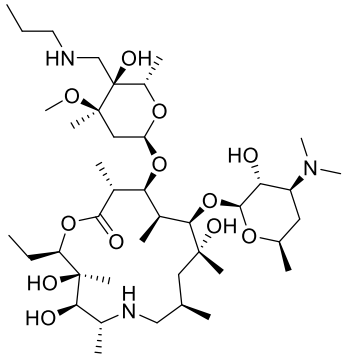
Product data sheet

MedKoo Cat#: 561476 Name: Tulathromycin A CAS#: 217500-96-4 Chemical Formula: $C_{41}H_{79}N_3O_{12}$ Exact Mass: 805.5664 Molecular Weight: 806.09	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Tulathromycin A, also known as Tulathromycin and CP-472295, is a macrolide antibiotic used to treat bovine respiratory disease (BRD) in cattle and swine respiratory disease in pigs.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	60.0	74.53

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.24 mL	6.20 mL	12.41 mL
5 mM	0.25 mL	1.24 mL	2.48 mL
10 mM	0.12 mL	0.62 mL	1.24 mL
50 mM	0.02 mL	0.12 mL	0.25 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Fischer CD, Duquette SC, Renaux BS, Feener TD, Morck DW, Hollenberg MD, Lucas MJ, Buret AG. Tulathromycin exerts proresolving effects in bovine neutrophils by inhibiting phospholipases and altering leukotriene B4, prostaglandin E2, and lipoxin A4 production. Antimicrob Agents Chemother. 2014 Aug;58(8):4298-307. doi: 10.1128/AAC.02813-14. Epub 2014 May 12. PMID: 24820086; PMCID: PMC4136062.
2. Fischer CD, Beatty JK, Zvaigzne CG, Morck DW, Lucas MJ, Buret AG. Anti-Inflammatory benefits of antibiotic-induced neutrophil apoptosis: tulathromycin induces caspase-3-dependent neutrophil programmed cell death and inhibits NF-kappaB signaling and CXCL8 transcription. Antimicrob Agents Chemother. 2011 Jan;55(1):338-48. doi: 10.1128/AAC.01052-10. Epub 2010 Oct 18. PMID: 20956586; PMCID: PMC3019645.

In vivo study

1. Fischer CD, Duquette SC, Renaux BS, Feener TD, Morck DW, Hollenberg MD, Lucas MJ, Buret AG. Tulathromycin exerts proresolving effects in bovine neutrophils by inhibiting phospholipases and altering leukotriene B4, prostaglandin E2, and lipoxin A4 production. Antimicrob Agents Chemother. 2014 Aug;58(8):4298-307. doi: 10.1128/AAC.02813-14. Epub 2014 May 12. PMID: 24820086; PMCID: PMC4136062.

2. Fischer CD, Beatty JK, Zvaigzne CG, Morck DW, Lucas MJ, Buret AG. Anti-Inflammatory benefits of antibiotic-induced neutrophil apoptosis: tulathromycin induces caspase-3-dependent neutrophil programmed cell death and inhibits NF-kappaB signaling and CXCL8 transcription. Antimicrob Agents Chemother. 2011 Jan;55(1):338-48. doi: 10.1128/AAC.01052-10. Epub 2010 Oct 18. PMID: 20956586; PMCID: PMC3019645.

7. Bioactivity

Biological target:

Tulathromycin A (Tulathromycin), a macrolide antibiotic, inhibits protein synthesis (IC50=0.26 μM) by targeting bacterial ribosome.

In vitro activity

The immunomodulating mechanisms of the TUL activities were further analyzed in bovine cells in vitro. Tulathromycin inhibited the release of free fatty acids in bovine neutrophils stimulated with 10 μM melittin, an activator of PLA2. Furthermore, in both resting neutrophils and in those stimulated with 3 μM A23187, tulathromycin significantly reduced secreted levels of LTB4. The addition of 3 μM exogenous arachidonic acid partially restored the levels of LTB4 in tulathromycin-treated neutrophils.

Reference: Antimicrob Agents Chemother. 2014 Aug;58(8):4298-307. https://pubmed.ncbi.nlm.nih.gov/24820086/

In vivo activity

To investigate the direct anti-inflammatory actions of tulathromycin in the absence of a bacterial stimulus, calves were challenged intratracheally with zymosan, a known Toll-like receptor 2 (TLR2) ligand that has been used as an inflammatory stimulus in vivo. Three hours postchallenge, BAL fluid LTB4 levels were significantly higher in zymosan-challenged sham-treated calves than in control calves (mean ± standard deviation, 209.9 ± 60.5 pg/ml and 51.1 ± 13.1 pg/ml, respectively); tulathromycin abolished this increase in BAL fluid LTB4 levels (63.9 ± 16.0 pg/ml). Twenty-four hours postchallenge, the BAL fluid levels of PGE2 were significantly higher in calves challenged with zymosan versus in the controls (594.6 ± 134.5 pg/ml and 142.5 ± 59.2 pg/ml, respectively); tulathromycin treatment inhibited the increase in BAL fluid PGE2 levels caused by zymosan (148.3 ± 34.7 pg/ml).

Reference: Antimicrob Agents Chemother. 2014 Aug;58(8):4298-307. https://pubmed.ncbi.nlm.nih.gov/24820086/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.