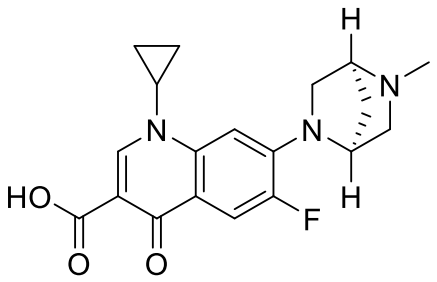
Product data sheet

MedKoo Cat#: 526066 Name: Danofloxacin free base CAS#: 112398-08-0 (free base) Chemical Formula: $C_{19}H_{20}FN_3O_3$ Exact Mass: 357.1489 Molecular Weight: 357.3854	
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:
Danofloxacin is a fluoroquinolone antibiotic used in veterinary medicine

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	25.0	70.0

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.80 mL	13.99 mL	27.98 mL
5 mM	0.56 mL	2.80 mL	5.60 mL
10 mM	0.28 mL	1.40 mL	2.80 mL
50 mM	0.06 mL	0.28 mL	0.56 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. Kang SJ, Jeong SH, Kim EJ, Park YI, Park SW, Shin HS, Son SW, Kang HG. Toxic effects of methylmercury, arsanilic acid and danofloxacin on the differentiation of mouse embryonic stem cells into neural cells. J Vet Sci. 2014;15(1):61-71. doi: 10.4142/jvs.2014.15.1.61. Epub 2013 Oct 18. PMID: 24136205; PMCID: PMC3973767.

In vivo study

1. Zhang N, Wu Y, Huang Z, Yao L, Zhang L, Cai Q, Shen X, Jiang H, Ding H. The PK-PD Relationship and Resistance Development of Danofloxacin against Mycoplasma gallisepticum in An In Vivo Infection Model. Front Microbiol. 2017 May 30;8:926. doi: 10.3389/fmicb.2017.00926. PMID: 28611739; PMCID: PMC5447713.
2. Aliabadi FS, Landoni MF, Lees P. Pharmacokinetics (PK), pharmacodynamics (PD), and PK-PD integration of danofloxacin in sheep biological fluids. Antimicrob Agents Chemother. 2003 Feb;47(2):626-35. doi: 10.1128/AAC.47.2.626-635.2003. PMID: 12543670; PMCID: PMC151775.

7. Bioactivity
Biological target:

Danofloxacin is a third generation fluoroquinolone antimicrobial agent that shows a broad spectrum of activity against most Gram-negative and Gram-positive bacteria, mycoplasma and chlamydia species, and plays an antimicrobial role by inhibition of bacterial DNA-gyrase.

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In vitro activity

This study was performed to assess the neurotoxic effects of methylmercury, arsanilic acid and danofloxacin by quantification of neural-specific proteins in vitro. Quantitation of the protein markers during 14 days of differentiation indicated that the mouse ESCs were completely differentiated into neural cells by Day 8. Overall, DF exerted less toxic effects during both stages compared to the other chemicals (Fig. 5). At relatively high concentrations, DF increased POU5F1 expression during the differentiated stage more than the differentiating stage (10 μM vs. 40 μM; Fig. 5A). GABAA-R seemed to be affected by high doses during the differentiating stage while the expression levels during the differentiated stage were significantly decreased ($p < 0.05$) by DF at concentrations greater than 10 μM (Fig. 5B). GFAP and Tuj1 expression during the differentiated stage was significantly decreased by all concentrations of DF, but this effect was observed only at concentrations greater than 5 and 10 μM during the differentiating stage (Figs. 5C and E). The production of Nestin was significantly decreased ($p < 0.05$) by concentrations of DF greater than 10 μM during both stages (Fig. 5D). MAP2 expression during the differentiated stage was more sensitive to DF than during the differentiating stage (5 μM vs. 20 μM, $p < 0.05$; Fig. 5F).

Reference: J Vet Sci. 2014 Mar; 15(1): 61–71. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3973767/

In vivo activity

In the present study, danofloxacin was orally administrated to the infected chickens once daily for 3 days by an established in vivo M. gallisepticum infection model. The PK profiles indicated that danofloxacin concentration in the lung tissues was higher than plasma. Mycoplasmacidal activity was achieved when infected chickens were exposed to danofloxacin at the dose group above 2.5 mg/kg. The ratios of AUC24/MIC (the area under the concentration-time curve over 24 h divided by the MIC) for 2 log10 (CFU) and 3 log10 (CFU) reduction were 31.97 and 97.98 L h/kg, respectively. Substitutions of Ser-83→Arg or Glu-87→Gly in gyrA; Glu-84→Lys in parC were observed in the resistant mutant strains that were selected from the dose group of 1 and 2.5 mg/kg. MICs of danofloxacin, enrofloxacin, ofloxacin, levofloxacin, gatifloxacin, and norfloxacin against the resistant mutant strains with a single mutation in position-83 were higher than that with a single mutation in position-87. These findings suggested that danofloxacin may be therapeutically effective to treat M. gallisepticum infection in chickens if administered at a dosage of 5.5 mg/kg once daily for 3 days.

Reference: Front Microbiol. 2017 May 30;8:926. https://pubmed.ncbi.nlm.nih.gov/28611739/

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.