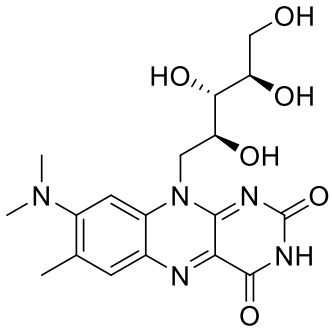
Product data sheet

MedKoo Cat#: 562256 Name: Roseoflavin CAS#: 51093-55-1 Chemical Formula: $C_{18}H_{23}N_5O_6$ Exact Mass: 405.1648 Molecular Weight: 405.41	
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:
Roseoflavin is an antibiotic agent. Roseoflavin is an analog of flavin mononucleotide (FMN) and riboflavin that is synthesized by the soil bacterium S. davawensis.

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
DMF	0.3	0.74
DMSO	10	24.67

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.47 mL	12.33 mL	24.67 mL
5 mM	0.49 mL	2.47 mL	4.93 mL
10 mM	0.25 mL	1.23 mL	2.47 mL
50 mM	0.05 mL	0.25 mL	0.49 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. Kao HJ, Balasubramaniam A, Chen CC, Huang CM. Extracellular electrons transferred from honey probiotic Bacillus circulans inhibits inflammatory acne vulgaris. Sci Rep. 2022 Nov 10;12(1):19217. doi: 10.1038/s41598-022-23848-9. PMID: 36357775; PMCID: PMC9649788.
2. Mansjö M, Johansson J. The riboflavin analog roseoflavin targets an FMN-riboswitch and blocks Listeria monocytogenes growth, but also stimulates virulence gene-expression and infection. RNA Biol. 2011 Jul-Aug;8(4):674-80. doi: 10.4161/rna.8.4.15586. Epub 2011 Jul 1. PMID: 21593602; PMCID: PMC3225981.

In vivo study

1. Hemasa AL, Mack M, Saliba KJ. Roseoflavin, a Natural Riboflavin Analogue, Possesses In Vitro and In Vivo Antiplasmodial Activity. Antimicrob Agents Chemother. 2022 Oct 18;66(10):e0054022. doi: 10.1128/aac.00540-22. Epub 2022 Sep 12. PMID: 36094195; PMCID: PMC9578400.

7. Bioactivity
Biological target:

Product data sheet

Roseoflavin has been shown to bind directly to FMN riboswitch aptamers (KD = ~100 nM), downregulating the expression of genes responsible for the synthesis and transport of riboflavin.

In vitro activity

Roseoflavin can block growth of the bacterial pathogen Listeria monocytogenes, but also enhances its virulence. Roseoflavin stimulated L. monocytogenes virulence gene expression and infection abilities in a mechanism independent of the FMN riboswitch.

Reference: RNA Biol. 2011 Jul-Aug;8(4):674-80. https://pubmed.ncbi.nlm.nih.gov/21593602/

In vivo activity

This study tested the antimalarial activity of roseoflavin against Plasmodium vinckei vinckei in mice. Roseoflavin decreased the parasitemia by 46-fold and, on average, increased the survival of mice by 4 to 5 days. These data indicate that roseoflavin could serve as a potential starting point for the development of new antimalarials.

Reference: Antimicrob Agents Chemother. 2022 Oct 18;66(10):e0054022. https://pubmed.ncbi.nlm.nih.gov/36094195/