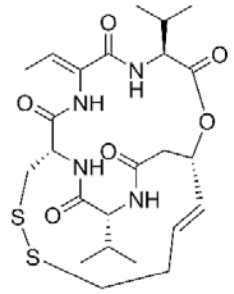
Product data sheet

MedKoo Cat#: 100764 Name: Romidepsin CAS#: 128517-07-7 Chemical Formula: $C_{24}H_{36}N_4O_6S_2$ Exact Mass: 540.2076 Molecular Weight: 540.70	
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:
Romidepsin, also known as FK228; is a bicyclic depsipeptide antibiotic isolated from the bacterium Chromobacterium violaceum with antineoplastic activity. After intracellular activation, romidepsin binds to and inhibits histone deacetylase (HDAC), resulting in alterations in gene expression and the induction of cell differentiation, cell cycle arrest, and apoptosis. This agent also inhibits hypoxia-induced angiogenesis and depletes several heat shock protein 90 (Hsp90)-dependent oncoproteins.

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	43.85	81.10
DMF	5.0	9.25
DMSO:PBS (pH 7.1) (1:1)	0.5	0.93
Ethanol	10.0	18.49

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	1.85 mL	9.25 mL	18.49 mL
5 mM	0.37 mL	1.85 mL	3.70 mL
10 mM	0.18 mL	0.92 mL	1.85 mL
50 mM	0.04 mL	0.18 mL	0.37 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. Shi Y, Fu Y, Zhang X, Zhao G, Yao Y, Guo Y, Ma G, Bai S, Li H. Romidepsin (FK228) regulates the expression of the immune checkpoint ligand PD-L1 and suppresses cellular immune functions in colon cancer. Cancer Immunol Immunother. 2021 Jan;70(1):61-73. doi: 10.1007/s00262-020-02653-1. Epub 2020 Jul 6. PMID: 32632663; PMCID: PMC7838139.

In vivo study

1. Shi Y, Fu Y, Zhang X, Zhao G, Yao Y, Guo Y, Ma G, Bai S, Li H. Romidepsin (FK228) regulates the expression of the immune checkpoint ligand PD-L1 and suppresses cellular immune functions in colon cancer. Cancer Immunol Immunother. 2021 Jan;70(1):61-73. doi: 10.1007/s00262-020-02653-1. Epub 2020 Jul 6. PMID: 32632663; PMCID: PMC7838139.

7. Bioactivity
Biological target: Romidepsin (FK 228) inhibits HDAC1, HDAC2, HDAC4, and HDAC6 with IC50s of 36 nM, 47 nM, 510 nM and 1.4 μM, respectively.

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In vitro activity

The effects of romidepsin on the proliferation, cell cycle and apoptosis of murine colon cancer cell lines were evaluated. CT26 and MC38 cells were treated with or without romidepsin for 24 h, then measured by Brdu cell cycle assay. A dramatic decrease in the number of cells in the S + G2/M phase and a significant increase in the number of cells in the G0/G1 phase after romidepsin treatment was observed (Fig. 1a). Furthermore, the expression level of PCNA was also downregulated, which suggested the proliferation inhibition effects of romidepsin (Fig. 1b). Compared to the control cells, romidepsin-treated cells had a marginal increase in apoptotic events (Fig. 1c), which was validated by the increased caspase 3 cleavage (Fig. 1d).

Reference: Cancer Immunol Immunother. 2021 Jan;70(1):61-73. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7838139/

In vivo activity

The effects of romidepsin in vivo were examined using subcutaneous tumor-transplanted mice and CAC (colitis-associated cancer) mice. Subcutaneous transplantation tumor mouse models were established by inoculating CT26 cells. After 16 days of treatment with romidepsin, tumor size and weight were obviously reduced compared with the control group (Fig. 2a). The expression of cleaved-caspase 3 in romidepsin-treated group was also upregulated (Fig. 2b). In the CAC model, colon cancer was induced by AOM and 3% DSS treatment for 70 days and then treated with romidepsin three times (Fig. 2c). The average number of tumors per mouse was used as criterion of efficacy, which was divided based on size (< 5 mm and >5 mm in the largest dimension). The average number of tumors > 5 mm per mouse was lower in the romidepsin treatment group than in the control group, while there was no obvious difference in the number of tumors with sizes < 5 mm between the two groups (Fig. 2d).

Reference: Cancer Immunol Immunother. 2021 Jan;70(1):61-73. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7838139/